

**UNCLASSIFIED**

Supporting Data FY 2003 President's Budget  
Submitted to OSD – February 2002

**DESCRIPTIVE SUMMARIES OF THE**



**RESEARCH, DEVELOPMENT, TEST AND EVALUATION**

**Army Appropriation, Budget Activities 6 and 7**

**Department of the Army**

**Office of the Secretary of the Army (Financial Management and Comptroller)**

**VOLUME III**

**UNCLASSIFIED**

**UNCLASSIFIED**

**DESCRIPTIVE SUMMARIES FOR PROGRAM ELEMENTS  
OF THE  
RESEARCH, DEVELOPMENT, TEST AND  
EVALUATION, ARMY  
FY 2003  
PRESIDENT'S BUDGET SUBMISSION  
FEBRUARY 2002**

**VOLUME III  
Budget Activities 6 and 7**

**Department of the Army  
Office of the Assistant Secretary of the Army (Financial Management and Comptroller)**

**UNCLASSIFIED**

**UNCLASSIFIED**

**FY 2003 RDT&E, ARMY  
PROGRAM ELEMENT DESCRIPTIVE SUMMARIES**

**INTRODUCTION AND EXPLANATION OF CONTENTS**

**1. General.** The purpose of this document is to provide summary information concerning the Army Research, Development, Test and Evaluation, Army program. The Descriptive Summaries are comprised of R-2 (Army RDT&E Budget Item Justification – Program Element level), R-2A (Army RDT&E Budget Item Justification – project level) and R-3 (Army RDT&E Cost Analysis) Exhibits, which provide narrative information on all RDT&E program elements and projects for the FY 2001, 2002 and 2003 time period.

**2. Relationship of the FY 2003 Budget Submission to the FY 2002/2003 Budget Submitted to Congress.** This paragraph provides a list of program elements restructured, transitioned, or established to provide specific program identification.

**A. Program Element Restructures.** Explanations for these changes can be found in the narrative sections of the Program Element R-2/R-3 Exhibits.

<b><u>OLD</u></b> <b><u>PE/PROJECT</u></b>	<b><u>NEW PROJECT TITLE</u></b>	<b><u>NEW</u></b> <b><u>PE/PROJECT</u></b>
0603006A/247	TAC C4 Technology Int	0603008A/TR1
0603006A/257	Digital Battlefld Comm	0603008A/TR2
0603308A/989	Mobile Tactical High Energy Laser (MTHHEL)	0603305A/TR3
0603308A/990	Missile Defense Integration	0603305A/TR4
0603308A/997	Missile Defense Battlelab	0603305A/TR5
0603308A/99A	Army Air and Missile Defense	0603305A/TR6
0605604A/670	Army Survivability Analysis & Evaluation Support	0605604A/675
0605604A/671	Army Survivability Analysis & Evaluation Support	0605604A/675
0605604A/672	Army Survivability Analysis & Evaluation Support	0605604A/675
0605604A/677	Army Survivability Analysis & Evaluation Support	0605604A/675
0605604A/678	Army Survivability Analysis & Evaluation Support	0605604A/675
0605712A/62B	Operational Testing Instrumentation Development	0605602A/62B
0605712A/62C	Modeling and Simulation Instrumentation	0605602A/62C

**UNCLASSIFIED**

0605712A/987

Modeling and Simulation Instrumentation

0605602A/62C

**UNCLASSIFIED**

**FY 2002/2003 Developmental Transitions.**

<b><u>FROM</u></b> <b><u>PE/PROJECT</u></b>	<b><u>PROJECT TITLE</u></b>	<b><u>TO</u></b> <b><u>PE/PROJECT</u></b>
0603782A/355	WIN-TACTICAL –DEM/VAL	0604782A/360
0604270A/L21	NATO AGS – TIARA	0718040A/C35
0603005A/538	Future Combat System (FCS)	0604645A/470
0602601A/HH7	Future Combat Systems – Applied Research	0603005A/53G
0603854A/505	Crusader	0604854A/503

**C. Establishment of New FY 2003 Program Elements/Projects.** There are no major system new starts. Minor new initiatives for FY 2003, in addition to Congressionally directed initiatives for FY 2002, are shown below with asterisks. The remaining programs listed are outyear initiatives or restructures beyond FY 2002 or were previously funded from other Defense appropriations.

<b><u>TITLE</u></b>	<b><u>PE/PROJECT</u></b>
DSCS - TELEPORT	0303610A/25A
Advanced Payload Develop & Spt (JMIP)	0305204A/11A
DTSP DEVELOPMENT (JMIP)	0305204A/11B
PERPETUAL ASSAIL & SECURE INFO SYS, RSCH, TNG & ED	0601102A/HA4
GLOBAL INFORMATION PORTAL	0601104A/HA1
THERMAL FLUID DESIGN TOOL	0601104A/HA2
VIRTUAL PARTS ENGINEERING RESEARCH CENTER	0601104A/HA3
CENTER FOR OPTICS MANUFACTURING	0601104A/HA5
POWER & ENERGY COLLABORATIVE TECH ALLIANCE (CTA)	0601104A/J09
ADVANCED SENSORS AND OBSCURANTS	0602120A/SA1
MICROELECTRO MECHANICAL SYSTEMS	0602307A/NA3
RAPID TARGET ACQUISITION & TRACKING SYSTEM	0602307A/NA5
JOINT MODELING & SIMULATION SYSTEM (JMASS)	0602308A/D03
THREE DIMENSIONAL ULTRASOUND IMAGING	0602308A/MC8
BIOTECHNOLOGY	0602622A/BA1
THERMOBARIC WARHEAD DEVELOPMENT	0602622A/CA1
GREEN ARMAMENTS TECHNOLOGY	0602624A/WA2
CORROSION MEASUREMENT AND CONTROL	0602624A/WA3
ARMAMENT SYSTEMS NETWORK IA CENTER	0602624A/WA4

**UNCLASSIFIED**

**C. Continuation of Establishment of New FY 2003 Program Elements/Projects.**

<b><u>TITLE</u></b>	<b><u>PE/PROJECT</u></b>
ELECTRONIC DISPLAY RESEARCH	0602705A/EM4
WASTE MINIMIZATION AND POLLUTION RESEARCH	0602720A/EM1
MOLECULAR & COMPUTATIONAL RISK ASSESSMENT	0602720A/EN8
TRANSPORTABLE DETONATION CHAMBER VALIDATION	0602720A/EN9
FT GEORGE MEADE FUEL CELL DEMONSTRATION	0602784A/EM2
CENTER FOR RELIABLE WIRELESS COMM TECH	0602786A/WA1
ARTHROPOD-BORNE INFECTIOUS DISEASE CONTROL	0602787A/MA1
DIABETES PROJECT	0602787A/MA2
MEDICAL AREA NETWORK FOR VIRTUAL TECHNOLOGY	0602787A/MA3
SPEECH CAPABLE PERSONAL DIGITAL ASSISTANT	0602787A/MA4
CENTER FOR INTERNATIONAL REHABILITATION	0602787A/MA5
DERMAL PHASE METER	0602787A/MA6
VCT LUNG SCAN	0602787A/MA7
MONOCLONAL ANTIBODY BASED TECHNOLOGY	0602787A/MA8
OPERATING ROOM OF THE FUTURE	0602787A/MA9
MANUFACTURING RDE CENTER FOR NANOTECHNOLOGIES	0602805A/NA2
FORCE PROJECTION LOGISTICS	0603001A/545
ADV DIAGNOSTICS & THERAPEUTIC DIG TECH	0603002A/MB1
BRAIN, BIOLOGY, AND MACHINE	0603002A/MB2
CENTER FOR INTEGRATION OF MEDICINE & INNOV TECH	0603002A/MB3
CENTER FOR UNTETHERED HEALTHCARE	0603002A/MB4
CONTINUOUS EXPERT CARE NETWORK TELEMEDICINE	0603002A/MB5
FRAGILE X SYNDROME	0603002A/MB6
HEMOGLOBIN BASED OXYGEN CARRIER	0603002A/MB7
HEPATITIS C	0603002A/MB8
JOINT US NORWEGIAN TELEMEDICINE	0603002A/MB9
MEMORIAL HERMANN TELEMED NETWORK	0603002A/MC1
MONOCLONAL ANTIBODIES, MASS BIO LAB	0603002A/MC2
SACCADIC FATIGUE MEASUREMENT	0603002A/MC3
SECURE TELEMEDICINE TECH PROGRAM	0603002A/MC4
SPINE RESEARCH AT WRAMC	0603002A/MC5
TRAUMA RESEARCH CENTER	0603002A/MC6

**UNCLASSIFIED**

**C. Continuation of Establishment of New FY 2003 Program Elements/Projects.**

<b><u>TITLE</u></b>	<b><u>PE/PROJECT</u></b>
MEDICAL SIMULATION TRAINING INITIATIVE	0603002A/MC9
EMERGENCY TELEMED RESPONSE & ADV TECH	0603002A/MD1
VETERANS COLLABORATIVE CARE MODEL PROGRAM	0603002A/MD2
FUTURE COMBAT SYSTEMS (FCS)	0603005A/53G
TACOM HYBRID VEHICLE DEMO: LITHIUM ION TECH	0603005A/CA2
CORROSION PREVENTION AND CONTROL PROGRAM	0603005A/CA3
VEHICLE BODY ARMOR SUPPORT SYSTEM	0603005A/CA4
FUEL CATALYST RESEARCH EVALUATION	0603005A/CA5
MISSILE RECYCLING PROGRAM	0603313A/NA4
105MM CONVENTIONAL TANK AMMUNITION	0603639A/64B
FUTURE SCOUT VEHICLE - ADVANCED DEVELOPMENT	0603643A/820
THROUGH WALL SURVEILLANCE RADAR TECHNOLOGY	0603710A/NA1
ENVIRONMENTAL RESTORATION TECHNOLOGY	0603728A/03E
PROTON EXCHANGE MEMBRANE FUEL CELL DEMO	0603728A/EM3
ENVIRONMENTAL RESTORATION TECH VALIDATION	0603779A/04E
CASTING EMISSION REDUCTION PROGRAM (CERP)	0603779A/EN1
ADVANCED PRECISION KILL WEAPON SYSTEM	0604802A/705
FORT ORD CLEANUP DEMONSTRATION PROJECT	0603779A/EN2
MANAGING ARMY TECHNOLOGY ENVIRON ENHANCEMENTS	0603779A/EN3
PORTA BELLA ENVIRONMENTAL CLEANUP	0603779A/EN5
UNEXPLODED ORDNANCE IN SUPPORT OF MILITARY READ	0603779A/EN6
VANADIUM TECHNOLOGY PROGRAM	0603779A/EN7
MORTAR SYSTEMS	0603802A/AS4
FUTURE MEDICAL SHELTER	0603807A/MD4
MEDICAL SIMULATION TRAINING INITIATIVE	0603002A/MC9
EMERGENCY TELEMED RESPONSE & ADV TECH	0603002A/MD1
VETERANS COLLABORATIVE CARE MODEL PROGRAM	0603002A/MD2
FUTURE COMBAT SYSTEMS (FCS)	0603005A/53G
TACOM HYBRID VEHICLE DEMO: LITHIUM ION TECH	0603005A/CA2
CORROSION PREVENTION AND CONTROL PROGRAM	0603005A/CA3
VEHICLE BODY ARMOR SUPPORT SYSTEM	0603005A/CA4
FUEL CATALYST RESEARCH EVALUATION	0603005A/CA5

**UNCLASSIFIED**

**C. Continuation of Establishment of New FY 2003 Program Elements/Projects.**

<b><u>TITLE</u></b>	<b><u>PE/PROJECT</u></b>
IMED TOOLS RURAL MOBILE COMMS	0603807A/MD5
INTEGRATED BROADCAST SERVICE (JMIP/DISTP)	0603850A/472
MEDIUM EXTENDED AIR DEFENSE SYSTEM (MEADS)	0603869A/01B
GROUND COMMON MISSILE	0604329A/01A
TARGET DEFEATING SYSTEM	0604609A/198
ARMORED SECURITY VEHICLE	0604642A/E58
STRIKER II	0604645A/426
ENGINEER VEHICLE UPGRADES	0604649A/G29
LIGHTWEIGHT LASER DESIGNATOR RANGEFINDER UPGRADES	0604710A/L76
ALLIANCE EXECUTIVE DEVELOPMENT & INTEGRATION	0604738A/J11
INTELLIGENCE SIMULATION SYSTEMS	0604742A/361
WARFIGHTER SIMULATION	0604742A/362
ARMY DISTRIB COMN GRND STAT (DCGS-A)-TIARA	0604766A/958
WIN-TACTICAL - EMD	0604782A/360
JOINT NETWORK MANAGEMENT SYSTEM	0604783A/363
LOW COST COMPETENT MUNITIONS (LCCM)	0604802A/AS5
CARTLEDGE INFUSER	0604807A/MD3
TRAJECTORY CORRECTABLE MUNITION	0604814A/700
ARMY AIRBORNE COMMAND & CONTROL SYS (A2C2S)	0604818A/C3A
MEDIUM CALIBER AMMUNITION	0603639A/694
PATRIOT ADVANCED CAPABILITY (PAC) - 3	0604865A/01C
SOLDIER-CENTERED ANALYSES FOR THE OBJECTIVE FORCE	0605326A/33B
OBJECTIVE FORCE TASK FORCE	0605801A/F06
TRANSPORTATION BENEFIT PROGRAM	0605801A/M77
ASARC AND CRB ESOH SUPPORT	0605857A/0E6
SPACE & MISSILE DEFENSE COMMAND - REIMBURSABLE	0605898A/R02
VENTURE CAPITAL	0708045A/EA1
HYPERVELOCITY MISSILE TD	0603313A/655



**UNCLASSIFIED**

**D. FY 2003 programs for which funding existed in the FY 2002 Amended President's Budget Submit (July 2001), but which are no longer funded beginning in FY 2003.**

<b><u>PE/PROJECT</u></b>	<b><u>TITLE</u></b>	<b><u>BRIEF EXPLANATION</u></b>
0603653A/B99	Tank and Medium Calibre Armaments	Program Terminated
0604645A/G25	M1 Breacher Dev	Program Terminated
0203735A/718	Ground Combat Vehicle HTI	Program Terminated
0203761A/394	Force XXI Initiatives	Program Terminated
0203801A/303	Stinger RMP PIP	Program Completed
0203802A/336	TOW PIP	Program Terminated
0602601A/T21	21 <sup>st</sup> Century Truck (T21)	Perennial Cong Add Dependent Pgm
0602787A/977	Emerging Infectious Diseases	Perennial Cong Add Dependent Pgm
0602805A/105	Dual Use Applications Programs	Program Completed
0603001A/393	MIL OPS In Urban Terrain (MOUT)	Program Completed
0603002A/975	Protection Against Emerging Infectious Diseases	Program Completed
0603804A/G10	Adv TAC PWR Sources AD	Program Completed
0603804A/K39	Environmental Equipment - AD	Program Completed
0603804A/429	Rigidwall Shelter Ed	Program Terminated
0603808A/434	Anti-Personnel Landmine Alternatives (NSD)	Program Terminated
0603808A/443	APL-A (MIXED SYSTEMS)	Program Terminated
0604820A/E10	Sentinel	Program Completed
0605013A/087	Army Distance Learning Program	Pgm Trans to Prod (Blk 3)/Unfunded Threshold Requirements.
0605803A/735	Net Assessment Directorate	Programs Transitions to OSD

**UNCLASSIFIED**

**3. Classification.** This document contains no classified data. Classified/Special Access Programs that are submitted offline are listed below.

* 0203735A/DC64	0602786A/AC60	** 0603122A/DB95/D
0203808A/DE11	0603005A/DC66	0603322A/DB92
0301359A	** 0603009A/DB18/DB20/DB31/DB34	0603710A/DC65/ DC67
0602122A/AB72/622	** 0603017A/AB69	0603851A/DC75
* 0602601A/AC84	0603020A/AB77/DB84/DB85	0604328A/DC71

\* Funding end in FY02, \*\* 0603009A/DB20 Funding ends in FY01, DB34 Open for FY02 PBD directed reprogramming,  
 \*\* 0603122A/DB95 Funding ends in FY01

**4. Footnotes.** This paragraph provides a list of program elements whose Line Item numbers and/or amounts differ from those provided in the previous submitted version of the FY 2003 Budget Submission. These differences are due to system processing synchronization issues. The revised line item numbers and amounts correctly report the Army's budget request and justification material provided herein.

**A. Line Item Differences.**

<b>Revised</b>		<b>Previously</b>	
<u>PE</u>	<u>TITLE</u>	<u>Line Item#</u>	<u>Line Item</u>
0605718A	Simulation & Modeling for Acq, Rqts, & TNC (SMART)	-	145
0605801A	Programwide Activities	145	146
0605803A	Technical Information Activities	146	147
0605805A	Munitions Standardization, Effectiveness and Safety	147	148
0605856A	Environmental Compliance	148	149
0605857A	Army Acquisition Pollution Prevention Program	149	150

**UNCLASSIFIED**

0605898A	Management Headquarters (Research and Development)	150	151
0909999A	Financing for Cancelled Account Adjustments	151	152
0603778A	MLRS Product Improvement Program	152	178
0708045A	End Item Industrial Preparedness Activities	178	179
1001018A	NATO Joint Stars	179	180

**B. Budget Amount Differences.**

<b>Amt</b>	<b>PE</b>	<b>TITLE</b>	<b>Previously</b>	
			<b>Submitted</b>	<b>Revised</b>
			<b>Budget Amt</b>	<b>Budget</b>
			<b>(\$000)</b>	<b>(\$000)</b>
0603005A		Combat Vehicle and Automotive Advanced Technology	229,778	234,978
0603854A		Artillery Systems – Dem/Val	251,665	246,465
0604223A		Comanche	914,932	910,160
0605716A		Army Evaluation Center	41,250	43,950
0605718A		Simulation & Modeling For Acq, Rqts, & Tng (SMART)	0	2,694
0605801A		Programwide Activities	78,452	73,058
0203744A		Aircraft Modifications/Product Improvement Program	196,794	201,566

UNCLASSIFIED  
 Department of the Army  
 FY 2003 RDT&E Program

Exhibit R-1

Summary

01-Feb-2002

Summary Recap of Budget Activities	Thousands of Dollars		
	FY 2001	FY 2002	FY 2003
UNCLASSIFIED Department of the Army FY 2003 RDT&E Program			

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

01-Feb-2002

Line	Program Element	Act	Item	Thousands of Dollars		
				FY 2001	FY 2002	FY 2003
	Basic research			205,184	231,982	237,486
	Applied Research			814,839	909,564	642,251
	Advanced technology development			811,028	910,329	735,652
	Demonstration/validation			897,927	878,491	775,641
	Engineering and manufacturing development			1,784,361	2,200,967	2,796,790
	Management support			890,780	795,316	806,058
	Operational system development			859,043	1,126,020	924,616
Total	RDT&E, Army			6,263,162	7,052,669	6,918,494

UNCLASSIFIED  
 Department of the Army  
 FY 2003 RDT&E Program

Exhibit R-1

Summary

01-Feb-2002

Summary Recap of Budget Activities	Thousands of Dollars		
	FY 2001	FY 2002	FY 2003
UNCLASSIFIED Department of the Army FY 2003 RDT&E Program			

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

01-Feb-2002

Line	Program Element	Act	Item	Thousands of Dollars		
				FY 2001	FY 2002	FY 2003
Basic research						
1	0601101A	01	IN-HOUSE LABORATORY INDEPENDENT RESEARCH	13,983	14,688	22,998
2	0601102A	01	DEFENSE RESEARCH SCIENCES	133,081	144,240	139,633
3	0601104A	01	UNIVERSITY AND INDUSTRY RESEARCH CENTERS	58,120	73,054	74,855
Total: Basic research				205,184	231,982	237,486
Applied Research						
4	0602105A	02	MATERIALS TECHNOLOGY	30,625	20,617	18,659
5	0602120A	02	SENSORS AND ELECTRONIC SURVIVABILITY	22,662	31,934	24,305
6	0602122A	02	TRACTOR HIP	6,991	7,672	6,839
7	0602211A	02	AVIATION TECHNOLOGY	30,216	43,859	43,692
8	0602270A	02	EW TECHNOLOGY	21,624	17,292	19,584
9	0602303A	02	MISSILE TECHNOLOGY	71,056	61,085	31,884
10	0602307A	02	ADVANCED WEAPONS TECHNOLOGY	6,435	26,883	11,208
11	0602308A	02	ADVANCED CONCEPTS AND SIMULATION	35,334	31,333	20,634
12	0602601A	02	COMBAT VEHICLE AND AUTOMOTIVE TECHNOLOGY	87,009	112,957	55,763
13	0602618A	02	BALLISTICS TECHNOLOGY	52,245	60,948	74,094
14	0602622A	02	CHEMICAL, SMOKE AND EQUIPMENT DEFEATING TECHNOLOGY	3,840	6,529	3,675
15	0602623A	02	JOINT SERVICE SMALL ARMS PROGRAM	5,223	5,560	5,812
16	0602624A	02	WEAPONS AND MUNITIONS TECHNOLOGY	46,722	65,197	38,090

UNCLASSIFIED  
 Department of the Army  
 FY 2003 RDT&E Program

Exhibit R-1

Summary

01-Feb-2002

Summary Recap of Budget Activities	Thousands of Dollars		
	FY 2001	FY 2002	FY 2003
UNCLASSIFIED Department of the Army FY 2003 RDT&E Program			

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

01-Feb-2002

Line	Program Element	Act	Item	Thousands of Dollars		
				FY 2001	FY 2002	FY 2003
17	0602705A	02	ELECTRONICS AND ELECTRONIC DEVICES	40,144	49,965	27,448
18	0602709A	02	NIGHT VISION TECHNOLOGY	24,935	22,993	22,333
19	0602712A	02	COUNTERMINE SYSTEMS	17,228	22,889	13,186
20	0602716A	02	HUMAN FACTORS ENGINEERING TECHNOLOGY	17,911	19,791	17,415
21	0602720A	02	ENVIRONMENTAL QUALITY TECHNOLOGY	58,745	23,569	23,018
22	0602782A	02	COMMAND, CONTROL, COMMUNICATIONS TECHNOLOGY	22,987	24,123	21,821
23	0602783A	02	COMPUTER AND SOFTWARE TECHNOLOGY	4,360	4,113	4,354
24	0602784A	02	MILITARY ENGINEERING TECHNOLOGY	54,366	59,354	51,124
25	0602785A	02	MANPOWER/PERSONNEL/TRAINING TECHNOLOGY	11,658	15,175	14,335
26	0602786A	02	LOGISTICS TECHNOLOGY	26,529	33,474	25,502
27	0602787A	02	MEDICAL TECHNOLOGY	108,400	128,798	67,476
28	0602789A	02	ARMY ARTIFICIAL INTELLIGENCE TECHNOLOGY	1	0	0
29	0602805A	02	DUAL USE SCIENCE AND TECHNOLOGY	7,593	13,454	0
Total: Applied Research				814,839	909,564	642,251
Advanced technology development						
30	0603001A	03	WARFIGHTER ADVANCED TECHNOLOGY	21,200	62,089	50,262
31	0603002A	03	MEDICAL ADVANCED TECHNOLOGY	216,951	174,042	16,590
32	0603003A	03	AVIATION ADVANCED TECHNOLOGY	26,835	38,496	45,404
33	0603004A	03	WEAPONS AND MUNITIONS ADVANCED TECHNOLOGY	56,230	35,381	66,514

UNCLASSIFIED  
 Department of the Army  
 FY 2003 RDT&E Program

Exhibit R-1

Summary

01-Feb-2002

Summary Recap of Budget Activities	Thousands of Dollars		
	FY 2001	FY 2002	FY 2003
UNCLASSIFIED Department of the Army FY 2003 RDT&E Program			

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

01-Feb-2002

Line	Program Element	Act	Item	Thousands of Dollars		
				FY 2001	FY 2002	FY 2003
34	0603005A	03	COMBAT VEHICLE AND AUTOMOTIVE ADVANCED TECHNOLOGY	167,679	225,960	234,978
35	0603006A	03	COMMAND, CONTROL, COMMUNICATIONS ADVANCED TECHNOLO	27,820	33,176	4,826
36	0603007A	03	MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLO	6,844	3,093	3,527
37	0603008A	03	ELECTRONIC WARFARE ADVANCED TECHNOLOGY	0	0	28,254
38	0603009A	03	TRACTOR HIKE	12,391	10,324	18,069
39	0603017A	03	TRACTOR RED	951	0	0
40	0603020A	03	TRACTOR ROSE	10,476	9,212	4,895
41	0603105A	03	MILITARY HIV RESEARCH	5,661	5,885	0
42	0603122A	03	TRACTOR HIP	942	0	0
43	0603238A	03	GLOBAL SURVEILLANCE/AIR DEFENSE/PRECISION STRIKE T	20,997	31,986	31,291
44	0603270A	03	EW TECHNOLOGY	28,825	24,367	11,600
45	0603313A	03	MISSILE AND ROCKET ADVANCED TECHNOLOGY	48,444	75,396	87,890
46	0603322A	03	TRACTOR CAGE	2,963	3,283	3,083
47	0603606A	03	LANDMINE WARFARE AND BARRIER ADVANCED TECHNOLOGY	19,922	25,640	24,104
48	0603607A	03	JOINT SERVICE SMALL ARMS PROGRAM	11,809	4,388	6,013
49	0603654A	03	LINE-OF-SIGHT TECHNOLOGY DEMONSTRATION	50,262	69,859	28,283
50	0603710A	03	NIGHT VISION ADVANCED TECHNOLOGY	41,598	49,389	36,494
51	0603728A	03	ENVIRONMENTAL QUALITY TECHNOLOGY DEMONSTRATIONS	10,685	7,292	8,980
52	0603734A	03	MILITARY ENGINEERING ADVANCED TECHNOLOGY	5,006	4,705	2,921
53	0603772A	03	ADVANCED TACTICAL COMPUTER SCIENCE AND SENSOR TECH	16,537	16,366	21,674

UNCLASSIFIED  
Department of the Army  
FY 2003 RDT&E Program

Exhibit R-1

Summary

01-Feb-2002

Summary Recap of Budget Activities	Thousands of Dollars		
	FY 2001	FY 2002	FY 2003
UNCLASSIFIED Department of the Army FY 2003 RDT&E Program			

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

01-Feb-2002

Line	Program Element	Act	Item	Thousands of Dollars		
				FY 2001	FY 2002	FY 2003
Total: Advanced technology development				811,028	910,329	735,652
Demonstration/validation						
54	0603305A	04	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION	0	0	27,887
55	0603308A	04	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION (DEM/VAL)	93,808	70,021	7,417
56	0603619A	04	LANDMINE WARFARE AND BARRIER - ADV DEV	17,804	19,877	20,286
57	0603627A	04	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ADV DEV	0	0	2,432
58	0603639A	04	TANK AND MEDIUM CALIBER AMMUNITION	46,238	52,074	11,354
59	0603653A	04	ADVANCED TANK ARMAMENT SYSTEM (ATAS)	263,436	100,587	124,108
60	0603713A	04	ARMY DATA DISTRIBUTION SYSTEM	17	0	0
61	0603747A	04	SOLDIER SUPPORT AND SURVIVABILITY	13,117	17,331	20,788
62	0603766A	04	TACTICAL SUPPORT DEVELOPMENT - ADV DEV (TIARA)	0	16,605	16,392
63	0603774A	04	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT	14,831	8,675	11,694
64	0603779A	04	ENVIRONMENTAL QUALITY TECHNOLOGY DEM/VAL	12,880	35,030	9,331
65	0603782A	04	WARFIGHTER INFORMATION NETWORK-TACTICAL - DEM/VAL	0	12,464	60,809
66	0603790A	04	NATO RESEARCH AND DEVELOPMENT	1,847	6,375	8,773
67	0603801A	04	AVIATION - ADV DEV	9,506	13,196	8,643
68	0603802A	04	WEAPONS AND MUNITIONS - ADV DEV	27,520	34,197	27,761
69	0603804A	04	LOGISTICS AND ENGINEER EQUIPMENT - ADV DEV	6,127	6,399	11,419
70	0603805A	04	COMBAT SERVICE SUPPORT CONTROL SYSTEM EVALUATION A	13,627	8,621	8,971



UNCLASSIFIED  
 Department of the Army  
 FY 2003 RDT&E Program

Exhibit R-1

Summary

01-Feb-2002

Summary Recap of Budget Activities	Thousands of Dollars		
	FY 2001	FY 2002	FY 2003
UNCLASSIFIED Department of the Army FY 2003 RDT&E Program			

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

01-Feb-2002

Line	Program Element	Act	Item	Thousands of Dollars		
				FY 2001	FY 2002	FY 2003
71	0603807A	04	MEDICAL SYSTEMS - ADV DEV	14,970	19,872	10,398
72	0603850A	04	INTEGRATED BROADCAST SERVICE (JMIP/DISTP)	0	1,968	1,962
73	0603851A	04	TRACTOR CAGE (DEM/VAL)	941	3,686	0
74	0603854A	04	ARTILLERY SYSTEMS - DEM/VAL	341,765	444,091	246,465
75	0603856A	04	SCAMP BLOCK II	19,493	6,895	21,006
76	0603869A	04	MEADS CONCEPTS - DEM/VAL	0	527	117,745
Total: Demonstration/validation				897,927	878,491	775,641
Engineering and manufacturing development						
77	0604201A	05	AIRCRAFT AVIONICS	40,527	50,838	40,308
78	0604220A	05	ARMED, DEPLOYABLE OH-58D	511	2,326	1,873
79	0604223A	05	COMANCHE	590,771	781,307	910,160
80	0604270A	05	EW DEVELOPMENT	64,241	53,616	22,819
81	0604280A	05	JOINT TACTICAL RADIO SYSTEM	59,814	74,814	65,818
82	0604321A	05	ALL SOURCE ANALYSIS SYSTEM	45,586	44,198	42,322
83	0604328A	05	TRACTOR CAGE	2,820	3,856	9,800
84	0604329A	05	COMMON MISSILE	4,683	16,592	29,919
85	0604601A	05	INFANTRY SUPPORT WEAPONS	2	0	0
86	0604604A	05	MEDIUM TACTICAL VEHICLES	2,014	1,945	1,953
87	0604609A	05	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ENG DEV	3,336	7,854	8,153

UNCLASSIFIED  
 Department of the Army  
 FY 2003 RDT&E Program

Exhibit R-1

Summary

01-Feb-2002

Summary Recap of Budget Activities	Thousands of Dollars		
	FY 2001	FY 2002	FY 2003
UNCLASSIFIED Department of the Army FY 2003 RDT&E Program			

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

01-Feb-2002

Line	Program Element	Act	Item	Thousands of Dollars		
				FY 2001	FY 2002	FY 2003
88	0604611A	05	JAVELIN	471	2,825	489
89	0604619A	05	LANDMINE WARFARE	19,287	18,780	11,913
90	0604622A	05	FAMILY OF HEAVY TACTICAL VEHICLES	0	0	3,990
91	0604633A	05	AIR TRAFFIC CONTROL	1,159	2,179	2,339
92	0604641A	05	TACTICAL UNMANNED GROUND VEHICLE (TUGV)	288	1,490	0
93	0604642A	05	LIGHT TACTICAL WHEELED VEHICLES	9,171	2,501	7,877
94	0604645A	05	ARMORED SYSTEMS MODERNIZATION (ASM)-ENG. DEV.	2,115	0	59,860
95	0604649A	05	ENGINEER MOBILITY EQUIPMENT DEVELOPMENT	0	9,202	8,146
96	0604710A	05	NIGHT VISION SYSTEMS - ENG DEV	28,722	27,376	32,328
97	0604713A	05	COMBAT FEEDING, CLOTHING, AND EQUIPMENT	88,705	90,244	94,474
98	0604715A	05	NON-SYSTEM TRAINING DEVICES - ENG DEV	71,482	28,682	43,650
99	0604716A	05	TERRAIN INFORMATION - ENG DEV	7,027	8,766	8,232
100	0604726A	05	INTEGRATED METEOROLOGICAL SUPPORT SYSTEM	1,755	1,896	3,417
101	0604738A	05	JSIMS CORE PROGRAM	0	30,727	24,230
102	0604739A	05	INTEGRATED BROADCAST SERVICE	6,005	0	0
103	0604741A	05	AIR DEFENSE COMMAND, CONTROL AND INTELLIGENCE - EN	15,857	17,088	26,978
104	0604742A	05	CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT	0	65,613	53,294
105	0604746A	05	AUTOMATIC TEST EQUIPMENT DEVELOPMENT	12,466	13,174	11,839
106	0604760A	05	DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS) - ENGIN	19,924	20,975	21,487
107	0604766A	05	TACTICAL EXPLOITATION SYSTEM/DCGS (TIARA)	57,867	59,693	56,662
108	0604768A	05	BRILLIANT ANTI-ARMOR SUBMUNITION (BAT)	97,931	122,868	190,293

UNCLASSIFIED  
 Department of the Army  
 FY 2003 RDT&E Program

Exhibit R-1

Summary

01-Feb-2002

Summary Recap of Budget Activities	Thousands of Dollars		
	FY 2001	FY 2002	FY 2003
UNCLASSIFIED Department of the Army FY 2003 RDT&E Program			

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

01-Feb-2002

Line	Program Element	Act	Item	Thousands of Dollars		
				FY 2001	FY 2002	FY 2003
109	0604770A	05	JOINT SURVEILLANCE/TARGET ATTACK RADAR SYSTEM	28,133	8,026	4,740
110	0604778A	05	POSITIONING SYSTEMS DEVELOPMENT (SPACE)	2,327	0	0
111	0604780A	05	COMBINED ARMS TACTICAL TRAINER (CATT)	17,784	13,531	7,579
112	0604783A	05	JOINT NETWORK MANAGEMENT SYSTEM	0	25,912	8,028
113	0604801A	05	AVIATION - ENG DEV	10,698	4,032	3,150
114	0604802A	05	WEAPONS AND MUNITIONS - ENG DEV	17,698	17,146	41,758
115	0604804A	05	LOGISTICS AND ENGINEER EQUIPMENT - ENG DEV	23,595	29,326	65,857
116	0604805A	05	COMMAND, CONTROL, COMMUNICATIONS SYSTEMS - ENG DEV	62,557	118,643	82,238
117	0604807A	05	MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPM	6,089	9,153	12,625
118	0604808A	05	LANDMINE WARFARE/BARRIER - ENG DEV	84,867	68,550	128,992
119	0604814A	05	SENSE AND DESTROY ARMAMENT MISSILE - ENG DEV	28,596	61,300	70,888
120	0604817A	05	COMBAT IDENTIFICATION	6,705	2,989	1,995
121	0604818A	05	ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWARE	37,849	57,216	80,672
122	0604819A	05	LOSAT	25,364	21,416	14,463
123	0604820A	05	RADAR DEVELOPMENT	12,911	5,119	0
124	0604823A	05	FIREFINDER	45,466	26,732	26,122
125	0604854A	05	ARTILLERY SYSTEMS - EMD	19,006	61,961	251,376
126	0604865A	05	PATRIOT PAC-3 THEATER MISSILE DEFENSE ACQ - EMD	0	0	150,819
127	0605013A	05	INFORMATION TECHNOLOGY DEVELOPMENT	100,179	108,490	50,865
Total: Engineering and manufacturing development				1,784,361	2,200,967	2,796,790

UNCLASSIFIED  
 Department of the Army  
 FY 2003 RDT&E Program

Exhibit R-1

Summary

01-Feb-2002

Summary Recap of Budget Activities	Thousands of Dollars		
	FY 2001	FY 2002	FY 2003
UNCLASSIFIED Department of the Army FY 2003 RDT&E Program			

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

01-Feb-2002

Line	Program Element	Act	Item	Thousands of Dollars		
				FY 2001	FY 2002	FY 2003
	Management support					
128	0604256A	06	THREAT SIMULATOR DEVELOPMENT	20,293	18,857	15,251
129	0604258A	06	TARGET SYSTEMS DEVELOPMENT	14,961	25,003	10,772
130	0604759A	06	MAJOR T&E INVESTMENT	42,380	49,482	53,797
131	0605103A	06	RAND ARROYO CENTER	19,105	19,806	22,148
132	0605301A	06	ARMY KWAJALEIN ATOLL	147,442	148,825	132,831
133	0605326A	06	CONCEPTS EXPERIMENTATION	18,179	31,501	22,627
134	0605502A	06	SMALL BUSINESS INNOVATIVE RESEARCH	144,559	0	0
135	0605601A	06	ARMY TEST RANGES AND FACILITIES	120,277	113,451	144,183
136	0605602A	06	ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS	39,094	34,719	43,222
137	0605604A	06	SURVIVABILITY/LETHALITY ANALYSIS	38,326	34,514	39,200
138	0605605A	06	DOD HIGH ENERGY LASER TEST FACILITY	36,145	23,188	14,410
139	0605606A	06	AIRCRAFT CERTIFICATION	3,140	3,552	4,062
140	0605702A	06	METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	6,719	6,833	7,310
141	0605706A	06	MATERIEL SYSTEMS ANALYSIS	8,683	8,811	10,189
142	0605709A	06	EXPLOITATION OF FOREIGN ITEMS	3,549	3,495	3,490
143	0605712A	06	SUPPORT OF OPERATIONAL TESTING	68,382	90,790	99,375
144	0605716A	06	ARMY EVALUATION CENTER	25,855	44,611	43,950
145	0605718A	06	SIMULATION & MODELING FOR ACQ, RQTS, & TNG (SMART)	0	0	2,694
146	0605801A	06	PROGRAMWIDE ACTIVITIES	67,449	59,584	73,058

UNCLASSIFIED  
Department of the Army  
FY 2003 RDT&E Program

Exhibit R-1

Summary

01-Feb-2002

Summary Recap of Budget Activities

Thousands of Dollars

FY 2001	FY 2002	FY 2003
---------	---------	---------

UNCLASSIFIED  
Department of the Army  
FY 2003 RDT&E Program

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

01-Feb-2002

Thousands of Dollars

Line	Program Element	Act	Item	FY 2001	FY 2002	FY 2003
147	0605803A	06	TECHNICAL INFORMATION ACTIVITIES	32,521	38,930	34,040
148	0605805A	06	MUNITIONS STANDARDIZATION, EFFECTIVENESS AND SAFET	15,961	30,437	16,014
149	0605856A	06	ENVIRONMENTAL COMPLIANCE	2,404	0	0
150	0605857A	06	ARMY ACQUISITION POLLUTION PREVENTION PROGRAM	5,019	1,719	1,902
151	0605898A	06	MANAGEMENT HEADQUARTERS (RESEARCH AND DEVELOPMENT)	8,185	7,208	11,533
152	0909999A	06	FINANCING FOR CANCELLED ACCOUNT ADJUSTMENTS	2,152	0	0
Total: Management support				890,780	795,316	806,058
Operational system development						
153	0102419A	07	JOINT LAND ATTACK CRUISE MISSILES DEFENSE (JLENS)	25,981	32,130	29,081
154	0203610A	07	DOMESTIC PREPAREDNESS AGAINST WEAPONS OF MASS DEST	2,884	2,581	0
155	0203726A	07	ADV FIELD ARTILLERY TACTICAL DATA SYSTEM	35,420	36,650	38,161
156	0203735A	07	COMBAT VEHICLE IMPROVEMENT PROGRAMS	95,689	166,449	54,465
157	0203740A	07	MANEUVER CONTROL SYSTEM	47,071	39,883	44,444
158	0203744A	07	AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAM	97,654	145,169	201,566
159	0203752A	07	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM	5,658	14,889	3,689
160	0203758A	07	DIGITIZATION	30,820	32,027	28,968
161	0203759A	07	FORCE XXI BATTLE COMMAND, BRIGADE AND BELOW (FBCB2	62,144	56,381	64,915
162	0203761A	07	FORCE XXI WRAP	0	15,446	0
163	0203801A	07	MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM	13,892	13,727	43,738

UNCLASSIFIED  
 Department of the Army  
 FY 2003 RDT&E Program

Exhibit R-1

Summary

01-Feb-2002

Summary Recap of Budget Activities	Thousands of Dollars		
	FY 2001	FY 2002	FY 2003
UNCLASSIFIED Department of the Army FY 2003 RDT&E Program			

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

01-Feb-2002

Line	Program Element	Act	Item	Thousands of Dollars		
				FY 2001	FY 2002	FY 2003
164	0203802A	07	OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS	54,419	68,318	13,018
165	0203808A	07	TRACTOR CARD	3,689	11,457	8,891
166	0208010A	07	JOINT TACTICAL COMMUNICATIONS PROGRAM (TRI-TAC)	35,423	21,428	14,121
167	0208053A	07	JOINT TACTICAL GROUND SYSTEM	6,209	5,176	2,860
168	0301359A	07	SPECIAL ARMY PROGRAM	10,636	7,072	7,031
169	0303028A	07	SECURITY AND INTELLIGENCE ACTIVITIES	0	2,434	5,438
170	0303140A	07	INFORMATION SYSTEMS SECURITY PROGRAM	12,109	13,253	14,844
171	0303141A	07	GLOBAL COMBAT SUPPORT SYSTEM	68,867	84,426	71,864
172	0303142A	07	SATCOM GROUND ENVIRONMENT (SPACE)	38,286	44,647	72,244
173	0303150A	07	WWMCCS/GLOBAL COMMAND AND CONTROL SYSTEM	13,783	13,385	17,895
174	0305114A	07	TRAFFIC CONTROL, APPROACH AND LANDING SYSTEM-FY 19	637	777	977
175	0305204A	07	TACTICAL UNMANNED AERIAL VEHICLES	35,970	37,880	46,479
176	0305206A	07	AIRBORNE RECONNAISSANCE ADV DEVELOPMENT	4,864	10,972	4,882
177	0305208A	07	DISTRIBUTED COMMON GROUND SYSTEMS (JMIP)	7,839	72,095	15,683
178	0603778A	07	MLRS PRODUCT IMPROVEMENT PROGRAM	62,955	99,505	57,825
179	0708045A	07	END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES	85,644	77,863	61,025
180	1001018A	07	NATO JOINT STARS	500	0	512
Total: Operational system development				859,043	1,126,020	924,616
Total: RDT&E, Army				6,263,162	7,052,669	6,918,494

# Table of Contents - RDT&E Volume III

<b>Line No.</b>	<b>PE</b>	<b>Program Element Title</b>	<b>Page</b>
<b>#6 - Management support</b>			
128	0604256A	THREAT SIMULATOR DEVELOPMENT	1
129	0604258A	TARGET SYSTEMS DEVELOPMENT	4
130	0604759A	Major T&E Investment	12
131	0605103A	Rand Arroyo Center	22
132	0605301A	ARMY KWAJALEIN ATOLL	25
133	0605326A	Concepts Experimentation	28
135	0605601A	ARMY TEST RANGES AND FACILITIES	37
136	0605602A	Army Technical Test Instrumentation and Targets	41
137	0605604A	Survivability/Lethality Analysis	55
138	0605605A	DOD High Energy Laser Test Facility	61
139	0605606A	AIRCRAFT CERTIFICATION	64
140	0605702A	Meteorological Support to RDT&E Activities	67
141	0605706A	MATERIEL SYSTEMS ANALYSIS	70
142	0605709A	EXPLOITATION OF FOREIGN ITEMS	74
143	0605712A	Support of Operational Testing	76
144	0605716A	Army Evaluation Center	82
145	0605718A	Simulation & Modeling for Acq, Rqts, & Tng (SMART)	85
146	0605801A	Programwide Activities	88
147	0605803A	Technical Information Activities	108
148	0605805A	Munitions Standardization, Effectiveness and Safet	124

# Table of Contents - RDT&E Volume III

<b>Line No.</b>	<b>PE</b>	<b>Program Element Title</b>	<b>Page</b>
150	0605857A	Army Acquisition Pollution Prevention Program	136
151	0605898A	Management Headquarters (Research and Development)	141
 <b>#7 - Operational system development</b>			
153	0102419A	Joint Land Attack Cruise Missiles Defense (JLENS)	145
155	0203726A	Adv Field Artillery Tactical Data System	152
156	0203735A	Combat Vehicle Improvement Programs	165
157	0203740A	Maneuver Control System	173
158	0203744A	Aircraft Modifications/Product Improvement Program	180
159	0203752A	Aircraft Engine Component Improvement Program	210
160	0203758A	Digitization	219
161	0203759A	Force XXI Battle Command, Brigade and Below (FBCB2)	228
162	0203761A	Force XXI WRAP	234
163	0203801A	Missile/Air Defense Product Improvement Program	239
164	0203802A	Other Missile Product Improvement Programs	246
166	0208010A	Joint Tactical Communications Program (TRI-TAC)	253
167	0208053A	Joint Tactical Ground System	268
169	0303028A	Security and Intelligence Activities	273
170	0303140A	Information Systems Security Program	279
171	0303141A	Global Combat Support System	292
172	0303142A	SATCOM Ground Environment (SPACE)	297



# Table of Contents - RDT&E Volume III

<b>Line No.</b>	<b>PE</b>	<b>Program Element Title</b>	<b>Page</b>
173	0303150A	WWMCCS/Global Command and Control System	317
174	0305114A	Traffic Control, Approach and Landing System-FY 19	323
175	0305204A	Tactical Unmanned Aerial Vehicles	326
176	0305206A	Airborne Reconnaissance Adv Development	349
177	0305208A	Distributed Common Ground Systems (JMIP)	357
178	0603778A	MLRS PRODUCT IMPROVEMENT PROGRAM	367
179	0708045A	End Item Industrial Preparedness Activities	383
180	1001018A	NATO Joint STARS	394

## Alphabetic Listing - RDT&E Volume III

<b>Program Element Title</b>	<b>PE</b>	<b>Line No.</b>	<b>Page</b>
Adv Field Artillery Tactical Data System	0203726A	155	152
Airborne Reconnaissance Adv Development	0305206A	176	349
AIRCRAFT CERTIFICATION	0605606A	139	64
Aircraft Engine Component Improvement Program	0203752A	159	210
Aircraft Modifications/Product Improvement Program	0203744A	158	180
Army Acquisition Pollution Prevention Program	0605857A	150	136
Army Evaluation Center	0605716A	144	82
ARMY KWAJALEIN ATOLL	0605301A	132	25
Army Technical Test Instrumentation and Targets	0605602A	136	41
ARMY TEST RANGES AND FACILITIES	0605601A	135	37
Combat Vehicle Improvement Programs	0203735A	156	165
Concepts Experimentation	0605326A	133	28
Digitization	0203758A	160	219
Distributed Common Ground Systems (JMIP)	0305208A	177	357
DOD High Energy Laser Test Facility	0605605A	138	61
End Item Industrial Preparedness Activities	0708045A	179	383
EXPLOITATION OF FOREIGN ITEMS	0605709A	142	74
Force XXI Battle Command, Brigade and Below (FBCB2)	0203759A	161	228
Force XXI WRAP	0203761A	162	234
Global Combat Support System	0303141A	171	292
Information Systems Security Program	0303140A	170	279

## Alphabetic Listing - RDT&E Volume III

<b>Program Element Title</b>	<b>PE</b>	<b>Line No.</b>	<b>Page</b>
Joint Land Attack Cruise Missiles Defense (JLENS)	0102419A	153	145
Joint Tactical Communications Program (TRI-TAC)	0208010A	166	253
Joint Tactical Ground System	0208053A	167	268
Major T&E Investment	0604759A	130	12
Management Headquarters (Research and Development)	0605898A	151	141
Maneuver Control System	0203740A	157	173
MATERIEL SYSTEMS ANALYSIS	0605706A	141	70
Meteorological Support to RDT&E Activities	0605702A	140	67
Missile/Air Defense Product Improvement Program	0203801A	163	239
MLRS PRODUCT IMPROVEMENT PROGRAM	0603778A	178	367
Munitions Standardization, Effectiveness and Safet	0605805A	148	124
NATO Joint STARS	1001018A	180	394
Other Missile Product Improvement Programs	0203802A	164	246
Programwide Activities	0605801A	146	88
Rand Arroyo Center	0605103A	131	22
SATCOM Ground Environment (SPACE)	0303142A	172	297
Security and Intelligence Activities	0303028A	169	273
Simulation & Modeling for Acq, Rqts, & Tng (SMART)	0605718A	145	85
Support of Operational Testing	0605712A	143	76
Survivability/Lethality Analysis	0605604A	137	55
Tactical Unmanned Aerial Vehicles	0305204A	175	326

# Alphabetic Listing - RDT&E Volume III

<b>Program Element Title</b>	<b>PE</b>	<b>Line No.</b>	<b>Page</b>
TARGET SYSTEMS DEVELOPMENT	0604258A	129	4
Technical Information Activities	0605803A	147	108
THREAT SIMULATOR DEVELOPMENT	0604256A	128	1
Traffic Control, Approach and Landing System-FY 19	0305114A	174	323
WWMCCS/Global Command and Control System	0303150A	173	317

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0604256A - THREAT SIMULATOR DEVELOPMENT</b>						PROJECT <b>976</b>		
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
976 ARMY THREAT SIM (ATS)	20293	18857	15251	18590	13004	15563	16099	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program supports the design, development, integration and fielding of realistic mobile threat simulators and realistic threat simulation products utilized in Army training, developmental and operational tests. Army Threat Simulator and Threat Simulation products are utilized to populate test battlefields for US Army Test and Evaluation Command (ATEC)-conducted operational tests, and to support Program Executive Officer (PEO) required user testing in System Integration Laboratories and hardware/simulation in-the-loop facilities. Army threat simulator and threat simulation products developed or fielded under this program support Army wide requirements defined in the AMC chartered Threat Simulator and Simulation Program Plan (TSPP) and identified as nonsystem specific threat product requirements. Each capability is pursued in concert and coordination with existing Army and tri-service capabilities to eliminate duplication of products and services while providing the proper mix of resources needed to support Army testing and training. These battlefield simulators represent systems (e.g. missile systems; command, control and communications systems; electronic warfare systems; helicopters; etc.) that are used to portray a realistic threat environment during testing of US weapon systems. Simulator development is responsive to Office of the Secretary of Defense and General Accounting Office concerns that the Army conduct operational testing in a realistic threat environment. While this project originally funded simulators representing Soviet equipment, the changing world order has expanded the scope of this program to address Rest Of World (ROW) threats. Actual threat equipment is acquired when appropriate in lieu of development. Total package fielding will still be required (i.e., instrumentation, operations and maintenance, manuals, new equipment training, etc.). Threat simulator development is accomplished under the auspices of the Project Manager for Instrumentation, Targets, and Threat Simulators (PM ITTS) and the Director, Operational Test and Evaluation, Threat Simulator Investment Working Group. These affiliations minimize any development duplication within the U.S. Army or Department of Defense (DoD). This project supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 1694 Finalized development and fielding of Global Positioning System (XMGPS) receiver jammer.
- 1828 Completed development of Distributed Electronic Warfare Simulation (XMDEWS) Advanced Land Combat System.
- 2869 Continued instrumentation and fielding of XM70A threat systems.
- 1296 Continued development of regimental elements of XMC3S for the Battle Management Network.
- 2806 Continued detailed design and development of active protective system (XMAPS) threat system.
- 2200 Developed Next Generation Anti-Tank Guided Missile (XMATGM) plume signature generator.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)****February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support****0604256A - THREAT SIMULATOR  
DEVELOPMENT****976****FY 2001 Accomplishments: (Continued)**

- 2500 Developed Threat Mine Simulator.
- 2100 Developed Threat Information Operations Simulator.
- 3000 Developed Millimeter Wave Jammer threat simulator.

Total 20293

**FY 2002 Planned Program**

- 1753 Continue development of XMAPS threat system.
- 3055 Develop Intelligence and Electronic Warfare scenario generation system for test scenario planning and execution in a live/virtual environment.
- 1958 Complete instrumentation and fielding of XM70A threat systems.
- 1540 Develop hardware -in-the-loop simulations of infra-red threat surface-to-air missile systems.
- 2098 Complete development and instrument Threat Mines Simulator.
- 1958 Develop Information Operations/Information Warfare (IO/IW) Threat system.
- 3495 Develop product improvements for XM11S threat systems.
- 1000 Develop Next Generation Anti-Tank Guided Missile (ATGM) hardware seeker system.
- 1000 Develop Advanced Cognitive Reasoning Technology simulator.
- 1000 Develop RF SAM Threat Simulator.

Total 18857

**FY 2003 Planned Program**

- 2173 Develop Top Attack simulator.
- 4710 Develop product improvements for XM11S threat system.
- 1408 Continue instrumentation and fielding of Threat Mines Simulator.
- 2494 Continue development of Intelligence and Electronic Warfare scenario generation system for test scenario planning and execution in a live/virtual environment.
- 4466 Continue development of IO/IW threat system.

Total 15251

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0604256A - THREAT SIMULATOR  
 DEVELOPMENT**

PROJECT  
**976**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	20808	16011	15917
Appropriated Value	21001	19011	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-154	0
b. SBIR / STTR	-515	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-193	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-666
Current Budget Submit (FY 2003 PB)	20293	18857	15251

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0604258A - TARGET SYSTEMS DEVELOPMENT**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	14961	25003	10772	14157	12925	11350	10882	Continuing	Continuing
238    AERIAL TARGETS	2810	6312	5638	7998	7676	6734	6356	Continuing	Continuing
459    GROUND TARGETS	12151	18691	5134	6159	5249	4616	4526	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program funds aerial and ground target hardware and software development, maintenance, and upgrades. The overall objective is to allow validation of weapon system accuracy and reliability by developing aerial and ground targets essential for test and evaluation (T&E). These targets are economical and expendable, remotely controlled or stationary, and often destroyed in use. The Army is the Tri-Service lead under Reliance for providing rotary wing, mobile ground, and assigned legacy targets for test and evaluation. The Army executes development of some Service-peculiar target requirements in support of quality assurance, lot acceptance, and training and continues development of Service-peculiar and ongoing target materiel upgrades to maintain continuity with current weapons technology and trends in modern and evolving Army weapons.

This program line supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).



**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0604258A - TARGET SYSTEMS DEVELOPMENT**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	15252	25212	13684
Appropriated Value	10346	25212	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-209	0
b. SBIR / STTR	-291	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Above Threshold Reprogramming	5000	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-94	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-2912
Current Budget Submit (FY 2003 PB )	14961	25003	10772

Change Summary Explanation: Funding: FY 2001/2002: funding increase in Ground Targets (D459) to procure Ukrainian Tanks/Armored Vehicles for the purpose of replicating Threat Target Sets as part of the Department of the Army's Testing Program (FY 2001 +5000).  
 FY 2003: Funds realigned in support of higher priority programs(-2912).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0604258A - TARGET SYSTEMS DEVELOPMENT</b>						<b>PROJECT</b> <b>238</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
238	AERIAL TARGETS	2810	6312	5638	7998	7676	6734	6356	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Supports Army Transformation by providing for development, acquisition, operation, storage, update, and maintenance of realistic surrogate or acquired threat high-performance, multi-spectral aerial targets and development of virtual target computer models of aerial targets. Modern weapons require test, evaluation, and training using threat representative aerial targets to assess their effectiveness on the battlefield. This program encompasses a family of rotary and fixed-wing targets; full-scale, miniature and subscale targets; tactical ballistic targets; virtual targets; ancillary devices; and remote control systems. These products are required to adequately stress weapon systems undergoing test and evaluation. To stress systems under test, aerial targets must have flight characteristics, signatures, and other performance factors that emulate the modern threat. This tasking includes long-range planning to determine future target needs and development of coordinated requirement documents; the management of target research, development, test and evaluation process; execution of the validation process to ensure that surrogate targets adequately represent the threat; development and acquisition of surrogate and acquired targets; and continuing maintenance, storage, and development/enhancements/update via engineering services of the developed and acquired threat targets to ensure availability for the Test and Evaluation (T&E) customer. The US Army is the Reliance lead for rotary wing targets and the Tri-Service lead for procurement and enhancement of the MQM-107 fixed wing target.

**FY 2001 Accomplishments:**

- 270 Continued management and sustainment of Army Rotary Wing target program (e.g., QAH-1, QUH-1, QH-50, and Hokum-X with drone kits), including updates for obsolescence, maintenance, and safety to support T&E programs such as Stinger, and Medium Extended Air Defense System (MEADS).
- 701 Provided RDT&E portion of funds needed to update aging MQM-107 equipment to overcome obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations supporting T&E programs such as Patriot, Stinger, JLENS, MEADS, HUMRAAM, and classified programs for Army and Tri-Service customers.
- 636 Continued redesign and testing of the Target Tracking and Control System (TTCS). Developed and tested system test set compliant with upgraded TTCS design. Continued to support current TTCS to maintain operations until all TTCSs are upgraded. Continued management of the Targets Management Initiative, which develops and integrates a set of Common Digital Architecture control equipment into aerial targets, improving performance and reducing operating costs.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0604258A - TARGET SYSTEMS DEVELOPMENT**      PROJECT  
**238**

**FY 2001 Accomplishments: (Continued)**

- 1203      Continued development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. Included resolution of Lance Missile Target performance shortfalls and recertification for use; development of Tandem Tow Target under cooperative initiative with British, Australian, and Canadian Governments (The Technical Cooperative Program) with delivery of two test articles.

Total 2810

**FY 2002 Planned Program**

- 480      Continue management and sustainment of Army Rotary Wing Target program (e.g., QAH-1, QUH-1, QH-50, and HOKUM-X with drone kits), including updates for obsolescence, maintenance, and safety to support T&E programs such as Comanche, Stinger, and Medium Extended Air Defense System (MEADS).
- 889      Provides RDT&E portion of funds needed to update aging MQM-107 equipment to overcome obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations supporting T&E programs such as Patriot, Stinger, JLENS, MEADS, HUMRAAM, and classified programs for Army and Tri-Service customers.
- 2487      Complete redesign and testing of upgraded TTCS to new design. Complete testing of upgraded test set. Investigate integration of BQM -34 target control capability into updated TTCS design. Continue to support current TTCS to maintain operations until all TTCSs are upgraded. Continue management of Targets Management Initiative developing and integrating a set of Common Digital Architecture control equipment into aerial targets, improving performance and reducing operating costs.
- 992      Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. Includes completion of development and testing of Tandem Tow Target under cooperative initiative with British, Australian, and Canadian Governments (The Technical Cooperative Program) with delivery of three test articles.
- 811      Develop additional Distributed Interactive Simulation (DIS) and Higher Level Architecture (HLA) compliant aerial virtual targets (e.g. Chinook and tactical UAV) to support modeling and simulation for T&E (e.g. pre-test simulation, post-test analysis, hardware-in-the-loop (HWIL) testing, and simulation of scenarios which are too costly or difficult to field test). Update existing models with added/improved infrared, radar, and visual characteristics. These models will be used by the Virtual Proving Ground and multiple weapon systems' T&E (e.g. Comanche, Patriot, Future Combat Systems, Joint Strike Fighter, and MEADS), and these models will be on-line and available to all T&E users.
- 653      Initiates six-year Integrated Avionics Program that integrates CTEIP Common Digital Architecture into aerial targets controlled by TTCS, improving reliability, maintainability, and target performance while reducing operational cost.

Total 6312

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0604258A - TARGET SYSTEMS DEVELOPMENT**

PROJECT  
**238**

**FY 2003 Planned Program**

- 418 Continue management and sustainment of Army Rotary Wing Target program (e.g., QAH-1, QUH-1, QH-50, and Hokum-X with drone kits), including updates for obsolescence, maintenance, and safety to support T&E programs such as Comanche, Stinger, and Medium Extended Air Defense System (MEADS).
- 886 Provides RDT&E portion of funds needed to update aging MQM-107 equipment to overcome obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations supporting T&E programs such as Patriot, Stinger, JLENS, MEADS, HUMRAAM, and classified programs for Army and Tri-Service customers.
- 2892 Continue upgrade of up to three TTCSs to new design. Continue to support current TTCS to maintain operations until all TTCSs are upgraded. Continue management of the Targets Management Initiative completing development and integration of a set of Common Digital Architecture control equipment into aerial targets, improving performance and reducing operating costs.
- 730 Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. Includes initiation of development of Low Cost Towed Target with delivery of three test articles.
- 712 Continues six-year Integrated Avionics Program that integrates CTEIP Common Digital Architecture into aerial targets controlled by TTCS, improving reliability, maintainability, and target performance while reducing operational cost.

Total 5638

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0604258A - TARGET SYSTEMS DEVELOPMENT</b>	PROJECT <b>459</b>
--------------------------------------------------	---------------------------------------------------------------------	-----------------------

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
459 GROUND TARGETS	12151	18691	5134	6159	5249	4616	4526	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program funds Army efforts to support test and evaluation (T&E) of advanced weapon systems and supports Army Transformation by developing surrogates, acquiring foreign equipment and developing virtual target computer models of ground vehicle targets. These products are required to adequately stress weapon systems undergoing test and evaluation. This tasking includes long-range planning to determine future target needs and development of coordinated requirement documents; the centralized management of the ground target research, development, test and evaluation process; execution of the validation process; acquisition of foreign equipment; and continuing maintenance, storage, and development/enhancement/update via engineering services of developed and acquired targets to ensure availability for test and evaluation customers. Project also manages use of current assets and operates centralized spare parts program. The US Army is the Tri-Service lead for providing mobile ground targets for test and evaluation.

**FY 2001 Accomplishments:**

- 2006 Provided funding to help manage and provide oversight of five Primary Operating Centers to include operation, storage, maintenance, and configuration management for the repair of greater than 300 Mobile Ground Target vehicles, including acquisition of new material and spare parts.
- 2153 Developed additional virtual ground targets (e.g. T-72M, BMP-1, LAV-3, German Roland, 4 classified) to support test and evaluation. Updated current models, added/improved infrared (IR) characteristics and improved visual representation. Target models will be utilized in Virtual Proving Ground and other weapon systems (e.g. Comanche, Hellfire, Longbow Apache, and Future Combat Systems) T&E and modeling and simulation (M&S) activities and are available online to over 300 users through the Virtual Targets Center.
- 2641 Completed initial development and began testing of the Next Mobile Ground Target Surrogate (Russian Smerch Multiple Rocket Launcher) and began fabrication of units for deployment into the operational fleet to maintain up-to-date threat representative targets to support T&E (e.g., Comanche, BAT). Delivered two test articles.
- 357 Completed fabrication of surrogate Infantry Fighting Vehicle (Russian name BMP3-S) for the operational fleet and update system configuration to maintain up-to-date threat representative targets that are required to support Comanche and BAT T&E in the FY 2002 timeframe.
- 4994 Began activity to acquire up to three T-80UD main battle tanks from the government of the Ukraine, to be placed in the Mobile Ground Targets vehicle fleet for use by T&E programs such as Comanche, BAT P3I, Land/Air Warrior, Apache, and others.

Total 12151

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support****0604258A - TARGET SYSTEMS DEVELOPMENT****459****FY 2002 Planned Program**

- 2335 Provide funding to help manage and provide oversight of five Primary Operating Centers to include operation, storage, maintenance, and configuration management for the repair of greater than 300 Mobile Ground Target vehicles, including acquisition of new material and spare parts.
- 2148 Develop additional (Distributed Interactive Simulation (DIS) and higher level architecture (HLA) compliant) ground virtual targets (e.g. T-80, Smerch, and 3 classified) to support modeling and simulation for T&E (e.g. pre-test simulation, post-test analysis, HWIL testing, and simulation of scenarios which are too costly or difficult to field test). Update existing models with added/improved infrared, radar, and visual characteristics. The Virtual Proving Ground and multiple weapon systems' T&E (e.g. Comanche, Longbow Apache, Future Combat Systems, and Joint Strike Fighter) will use these models, and these models will be on-line and available to all T&E users.
- 1723 Complete fabrication of and deploy the Next Mobile Ground Target Surrogate (Russian Smerch Multiple Rocket Launcher) units into the operational fleet to maintain up-to-date threat representative targets to support T&E (e.g., Comanche, BAT). Delivers four articles.
- 343 Complete deployment of surrogate Infantry Fighting Vehicle (Russian name BMP3-S) into the operational fleet and update system configuration to maintain up-to-date threat representative targets that are required to support Comanche and BAT T&E in the FY 2002 timeframe.
- 2069 Begin development of a very low cost (< 10% of cost of the actual MBT) Russian Main Battle Tank (MBT) Surrogate, which will emulate the visual, infrared, and radio frequency signatures, to support T&E (e.g., Comanche, BAT, Apache). Delivers two test articles.
- 10073 Acquire up to seven T-80UD main battle tanks from the government of the Ukraine, to be placed in the Mobile Ground Targets vehicle fleet for use by T&E programs such as Comanche, BAT P3I, Land/Air Warrior, Apache, and others.

Total 18691

**FY 2003 Planned Program**

- 2667 Provide funding to help manage and provide oversight of five Primary Operating Centers to include operation, storage, maintenance, and configuration management for the repair of greater than 300 Mobile Ground Target vehicles, including acquisition of new material and spare parts.
- 1307 Update and maintain the library of more than 1000 Virtual Target computer models to support modeling and simulation for T&E (e.g. pre-test simulation, post-test analysis, HWIL testing, and simulation scenarios which are too costly or difficult to field test). The models are provided on-line to the T&E modeling and simulation community (over 300 registered users representing over 100 agencies) through an Internet based model exchange to facilitate re-use of existing models. This activity supports the Virtual Proving Ground and multiple weapon systems' T&E (e.g. Comanche, Longbow Apache, Future Combat Systems, and Joint Strike Fighter).

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0604258A - TARGET SYSTEMS DEVELOPMENT**

PROJECT  
**459**

**FY 2003 Planned Program (Continued)**

- 1160 Complete initial development, and begin testing and validation of a very low cost Russian MBT Surrogate, which will emulate the visual, infrared, and radio frequency signatures, to support T&E (e.g., Comanche, BAT, Apache).

Total 5134

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0604759A - Major T&E Investment**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	42380	49482	53797	63845	68720	71895	67467	Continuing	Continuing
983 MAJOR T&E INVEST-USAKA	7879	7706	8459	14372	9960	7467	8196	Continuing	Continuing
984 MAJOR TECH TEST INSTR	28182	33535	37372	37563	41550	41674	37828	Continuing	Continuing
986 MAJ USER TEST INST	6319	8241	7966	11910	17210	22754	21443	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program funds development and acquisition of major developmental test instrumentation for the U.S. Army Test and Evaluation Command (ATEC) and Developmental Test Command (DTC) test activities: White Sands Missile Range (WSMR), NM; Yuma Proving Ground, (YPG), AZ; Aberdeen Test Center (ATC), MD; Dugway Proving Ground (DPG), UT; Redstone Technical Test Center (RTTC), AL; Aviation Technical Test Center (ATTC), AL; and for the US Army Kwajalein Atoll (USAKA), which is managed by the U.S. Army Space and Missile Defense Command. Program also funds development and acquisition of Operational Test Command (OTC) major field instrumentation. Requirements for instrumentation are identified through a long range survey of project managers, Research Development and Engineering Centers (RDECs), and Battle Laboratories developing future weapon systems and the test programs that require these systems. Army testing facilities are also surveyed to determine major testing capability shortfalls. This program line supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).



**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0604759A - Major T&E Investment**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2001 PB)	43616	49897	56277
Appropriated Value	44019	49897	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-415	0
b. SBIR/STTR	-1236	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-403	0	0
Adjustments to Budget Years Since FY2001 PB	0	0	-2480
Current Budget Submit (FY 2003 PB )	42380	49482	53797

## ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0604759A - Major T&amp;E Investment</b>						<b>PROJECT</b> <b>983</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
983 MAJOR T&E INVEST-USAKA	7879	7706	8459	14372	9960	7467	8196	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project funds the purchase of major improvement and modernization (I&M) equipment for the US Army Kwajalein Atoll/Ronald Reagan Ballistic Missile Defense Test Site (USAKA/RTS) located in the Marshall Islands. USAKA/RTS is a national test range supporting Army, Missile Defense Agency (MDA, formerly BMDO), US Air Force, National Aeronautics and Space Administration (NASA), and other customers. Program upgrades radars, telemetry, optics, command/control and other equipment required to maintain RTS as a national test range. These upgrades are critical to the success of Theater Missile Defense (TMD) and Ground-based Mid-course Missile Defense (GMD) test missions.

The Kwajalein Modernization and Remoting (KMAR) project which is a concurrent, range-wide modernization effort to maximize the use of common, standardized commercial off-the-shelf (COTS) technology to replace obsolete components; implement common hardware/software architectures and automation; and "remote" the operation of range sensors and instrumentation to the island of Kwajalein. This effort will upgrade range capabilities that are critical to the success of Theater Missile Defense (TMD) and National Missile Defense (NMD) test missions as well as significantly reduce USAKA/RTS annual operating costs beginning in FY 2003.

**FY 2001 Accomplishments:**

- 7879 Continued Kwajalein Modernization and Remoting (KMAR) - Completed installation of IF receiver, computer, digital pulse compression and recording equipment for Millimeter Wave (MMW) Radar. Began installation of ARPA Long Range Tracking and Instrumentation Radar (ALTAIR) modernization transmit control, antenna control, radiation monitor interface subsystems. Constructed the Kwajalein Mission Control Center and installed, verified and validated operation of computer and consoles. Procured and installed three telemetry (TM) antennas for the Roi TM Site and procured an additional antenna for Kwajalein. Installed one Super RADOT servo system and procured four additional servo systems. Completed pre-siting development of ALTAIR KMAR systems and initiated on-site installation. Initiated pre-siting development of Target Resolution and Discrimination Experiment (TRADEX) KMAR systems.

Total 7879

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0604759A - Major T&E Investment**

PROJECT

**983****FY 2002 Planned Program**

- 7706 Continue Kwajalein Modernization and Remoting (KMAR) - Complete installation of IF receiver, computer, digital pulse compression and recording equipment for ALTAIR Radar. After validation and verification, ALTAIR radar modernization will be complete on 1 May 2002. Complete pre-siting development of TRADEX KMAR systems; begin installation of TRADEX transmit control, antenna control, and radiation monitor interface subsystems. Complete installation of four TM antenna systems at Kwajalein TM site. Complete installation of remaining four Super RADOT servo systems.

Total 7706

**FY 2003 Planned Program**

- 2675 Continue Kwajalein Modernization and Remoting (KMAR) - Complete installation of IF receiver, computer, digital pulse compression and recording equipment for TRADEX Radar. After validation and verification, TRADEX radar modernization will be complete on 1 January 2003.
- 1670 Outside Cable Plant Restoration - All pressurized, lead-sheathed backbone and distribution cable will be replaced with copper cable. This upgrade will provide adequate mission and administrative communications support for RTS technical instrumentation and its supporting/supported organizations and customers.
- 1570 Purchase and install TM recording, processing and distribution equipment.
- 2000 Initiate upgrade to Kwajalein Mission Control Center (KMCC) for compatibility with upgraded KMAR sensors.
- 544 Continue Range Safety Center upgrade to support Multiple Simultaneous Engagements (MSE). Effort previously funded under USAKA PE 0605301A.

Total 8459

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>		PE NUMBER AND TITLE <b>0604759A - Major T&amp;E Investment</b>					PROJECT <b>984</b>			
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
984	MAJOR TECH TEST INSTR	28182	33535	37372	37563	41550	41674	37828	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project develops and acquires major test instrumentation to perform developmental testing of weapon systems at U. S. Army Test and Evaluation Command (ATEC) Developmental Test Command (DTC) activities which include: Yuma Proving Ground (YPG), AZ; Aberdeen Test Center (ATC), MD; Dugway Proving Ground (DPG), UT; White Sands Missile Range (WSMR), NM; Redstone Technical Test Center (RTTC), AL; and Aviation Technical Test Center (ATTC), AL. Projects are designated as a major program based on their visibility, assessed relative technical risk (medium-high), schedule risk, cost (generally greater than \$1M/yr or \$5M for the total project) and applicability to other mission areas or services. These projects are technically demanding, pushing the state-of-the-art, unique instrumentation assets or suites to meet the technology shortfalls, and generally result from development programs managed by a professional project management team. The Test Support Network (TSN) at WSMR provides complete secure coverage of voice, data and video in a single integrated, transport system. The TSN will provide advanced encryption capabilities and remote control of switching capabilities for test configuration and total network data arrangement control. The Land Combat Instrumentation (LCI) provides for upgrade and expansion for Automotive Test Command's (ATC) suite of instrumentation required for performance testing of combat and tactical vehicles, advanced armor, and advanced munitions. The Frequency Surveillance System (FSS) provides remote capabilities to daily operations of radio frequency spectrum surveillance at WSMR in support of all Service and non-DoD agency tests. The Dynamic Infrared Scene Projector (DIRSP) conducts performance testing of night vision sensors and infrared (IR) imaging seekers at RTTC, and will provide the capability to fully simulate and synthesize present and future battlefields with a mix of real and simulated objects. The Hardened Subminiature Telemetry and Sensor System (HSTSS) is developing, miniaturizing, and hardening an instrumentation/telemetry package at YPG that will provide continuous direct measurement of internal functioning and flight data for cannon-launched munitions, smart submunitions, and small missiles/rockets. The Range Digital Transmission System (RDTS) will improve test operations and will reduce test costs allowing for efficient data collection and remote operations at YPG. The Mobile Infrared Scene Projector (MIRSP) project will conduct performance testing of imaging infrared and FLIR sensors while installed on the weapon system under test at ATTC.

**FY 2001 Accomplishments:**

- 18870 Combined WSMR TSN Phase II/III into single TSN build-out phase for extension of fiber optic service to additional WSMR test sites.
- 829 Continued LCI installation of ACN instrumentation at Perryman and Churchville test areas of ATC.
- 2242 Continued development and acceptance testing of HSTSS components. Continued work in TERM-KE and MLRS integration.
- 4626 Continued installation of digital fiber optic cable to support YPG RDTS Phase I.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0604759A - Major T&E Investment**

PROJECT  
**984**

## FY 2001 Accomplishments: (Continued)

- 1312 Continued development and acquisition of Phase II objective MIRSP.
- 172 Conducted final system acceptance test of FSS equipment at WSMR.
- 131 Conducted DIRSP system integration and factory acceptance testing at contractor's facility. Finalized site acceptance testing at Redstone Technical Test Center (RTTC).

Total 28182

## FY 2002 Planned Program

- 12931 Complete Test Support Network (TSN) build-out for fiber optic cable installation. Continue transmission electronics and system integration and testing efforts.
- 11547 Range Data Transmission System (RDTS): Will complete installation of digital fiber optic cable for the West Kofa test ranges. Initiate installation of digital fiber optic cable for the South Cibola and East Kofa test ranges.
- 4342 Hardened Subminiature Telemetry and Sensor System (HSTSS) component deliveries complete, continue prototype system testing.
- 1076 Complete LCI installation of ACN Instrumentation at the Perryman and Churchville test areas of ATC.
- 1230 Continue the development and acquisition of Phase II objective MIRSP.
- 1020 Initiate development of the high fidelity and low fidelity simulation/test acceptance chambers for the Advanced Multi-Spectral Sensor Subsystem Test Capability (AMSSTC).
- 1389 Initiate test items to data center and database systems development of Versatile Information Systems Integrated Online (VISION) project at ATC.

Total 33535

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0604759A - Major T&E Investment**

**PROJECT**  
**984**

**FY 2003 Planned Program**

- 14552 Continue RDTS installation of digital fiber optic cable in support of the South Cibola and East Kofa test ranges.
- 1513 Complete TSN transmission electronics, system integration and testing efforts.
- 5766 Initiate development of Hardened Subminiature Telemetry and Sensor System (HSTSS) embedded instrumentation for a single round for use in both testing and training arenas.
- 5157 Advanced Multi-Spectral Sensor Subsystem Capabilities (AMMSTC) - Complete acquisition of test chamber flight motion simulators. Procure long-lead instrumentation for the Multi-Spectral Simulation Test Acceptance Facility (MS-STAF).
- 6323 Continue development of test items and database for Versatile Information Systems Integrated Online (VISION).
- 102 21st Century Target Control System: Acquisition and integration of DoD-standard multi-service target control system at White Sands Missile Range
- 1605 C4I/Test Instrumentation Control Center (TCC) II: Enhancement and expansion of the functions of the Test Instrumentation Control Center (TCC) to test the Digitized Army and its suite of Army Technical Architecture (ATA)-compliant C4I systems
- 642 Quantitative Visualization for Test and Evaluation: Development of new a capability for real-time and quantitatively precise visualization of all test data, simulated and real, for use by testers and program managers
- 1712 MIRSP Objective: Completion of verification, validation, accreditation and fielding of the prototype mobile system to project accurate, dynamic, realistic infrared scenes for evaluation of imaging infrared seekers, night sights, and trackers on aviation and ground vehicles

Total 37372

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0604759A - Major T&amp;E Investment</b>						<b>PROJECT</b> <b>986</b>		
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
986 MAJ USER TEST INST	6319	8241	7966	11910	17210	22754	21443	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** This project supports the development of major field instrumentation for Operational Testing (OT), Force Development Testing and Experimentation (FDTE), and Army Warfighting Experiments (AWE) for the U.S Army Test and Evaluation Command (ATEC) which includes operational test directorates at Fort Hood, TX, Fort Bragg, NC, Fort Sill, OK, Fort Bliss, TX and Fort Huachuca, AZ. Each initiative set forth in this program is directly tied to tactical systems that support each of the five Army Modernization Objectives: Project and Sustain; Protect The Force; Win Information War; Conduct Precision Strikes; and Dominate The Maneuver Battle.

Cornerstone of this effort is the Mobile Automated Instrumentation Suite (MAIS) which provides users a high fidelity, realistic, real-time capability to measure the performance of hardware and personnel under tactical conditions for small and large-scale operations (up to 1,830 players). MAIS is the US Army's only Real Time Casualty Assessment (RTCA) capability and is used to test all current and future U.S. Army weapons and weapon systems in a force-on-force operational environment. This project includes two major thrust areas: MAIS Pre-Planned Product Improvements (P3I) and Instrumentation XXI. Without these capabilities, the Operational Test community will encounter shortcomings in its ability to adequately assess the Interim Brigade Combat Team and Army Transformation developments.

MAIS P3I RDTE develops the instrumentation required, but not funded, under the basic MAIS program. MAIS P3I RDTE develops performance enhancements and technology upgrades to the MAIS Command, Control and Communications (C3) Center, Communications Network, weapons system interfaces, and miniaturization of the vest peripherals, GPS System, and encryption components. These improvements will enable MAIS to measure and record accrued damage, levels of exposure, effects of countermeasures, evasive action, and instrument threat vehicles, while significantly reducing system intrusiveness and increase the safety of current instrumentation for both vehicle and dismounted instrumentation. MAIS P3I provides insertion of enhancements to the RTCA algorithms; simulation of Opposing Force (OPFOR) weapon systems and player units for newly acquired weapon systems; and development of player units for new weapon systems.

These core system enhancements are required as part of the basic program enabling the operational test community to effectively emulate current and future battlefield weapons in a high fidelity environment. Weapon system unique MAIS components are funded by the weapon system program. The Instrumentation XXI thrust area of MAIS develops instrumentation that does not presently exist to monitor, record, stress, and analyze the effects of the digital information battlefield in realistic operational scenarios.

Instrumentation XXI is required by the operational test community to integrate digital battlefield data collection and analysis tools into the MAIS. These tools will collect, store and analyze data from this new dimension of digital battlefield warfare. Instrumentation XXI ensures Army Transformation communications can be captured and analyzed at various echelons from the tactical vehicle to the command center, in realistic operational scenarios. Additionally, Instrumentation XXI provides MAIS the opportunity to interface the live component "weapons systems" into the synthetic environment and leverage live tests with simulations. The ability to fully stress the entire battlefield with numerous simulated entities present opportunities for significant cost savings and greater realism than would otherwise be achievable. This effort responds to the current OPTEMPO and PERSTEMPO demands to force the US Army to conduct more realistic, more accurate, and comprehensive evaluations at reduced costs by virtually

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support**

**0604759A - Major T&E Investment**

**986**

replicating a greater number of troop resources in force-on-force testing and training exercises. Personnel and resources cuts have already been taken in the test community predicated upon data reduction/analysis streamlining provided by this MAIS capability.

### FY 2001 Accomplishments:

- 6319 Completed development of the player unit bus architecture. Continued MAIS P3I core weapon system interface development for existing and emerging weapon systems. Continued development of the MAIS reconfigurable surrogate interface/controller. Continued MAIS miniaturization, specifically designed, developed and tested system algorithms. Initiated the development, under Instrumentation XXI, of core system algorithms and interfaces for existing and emerging weapon systems to include Air Defense Artillery and aviation fly-out models, player unit peripherals, GPS system, and communication/encryption components. Continued development of a reconfigurable interface/controller that allows MAIS to use the training community's surrogate weapons. Initiated study of interface MAIS into the MOUT environment.

Total 6319

### FY 2002 Planned Program

- 8241 Complete development of Micro-Programmable Electronics (MPE) miniaturization and communications/encryption devices. Continue development of MAIS interface into the MOUT environment. Continue development of MAIS P3I core weapons system interface and the MAIS reconfigurable surrogate interface/controller. Continue the development, under Instrumentation XXI, of core system algorithms and interfaces for existing and emerging weapons systems to include Air Defense Artillery and aviation fly-out models, player unit peripherals, GPS system, and communication/encryption components. Continue development of a reconfigurable interface/controller, which allows use of the training community's surrogate weapons. Initiate development of Pairing Improvements, specifically the development and testing of system algorithms. Initiate development of MAIS/Land Warrior interface.

Total 8241



**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0604759A - Major T&E Investment**

PROJECT

**986****FY 2003 Planned Program**

- 7966 Continue development of MAIS interface into the MOUT environment. Continue development of MAIS P3I core weapons systems interface and the MAIS reconfigurable surrogate interface/controller. Under Instrumentation XXI, complete the development of core system algorithms and interfaces for existing and emerging weapons systems to include Air Defense Artillery and aviation fly-out models, player unit peripherals, GPS system, and communication/encryption components. Continue development of a reconfigurable interface/controller, which allows use of the training community's surrogate weapons. Continue development of Pairing Improvements. Continue development of MAIS/Land Warrior interface.

Total 7966

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605103A - Rand Arroyo Center</b>					<b>PROJECT</b> <b>732</b>			
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
732 ARROYO CENTER SPT	19105	19806	22148	23072	23414	23870	24393	0	259609	

**A. Mission Description and Budget Item Justification:** This program funds the RAND Arroyo Center, the Department of the Army's Federally Funded Research and Development Center (FFRDC) for studies and analysis. The Arroyo Center draws its researchers from RAND's staff of nearly 700 professionals trained in a broad range of disciplines. Most staff members work in RAND's principal locations-Santa Monica, California; Arlington, Virginia; and Pittsburgh, Pennsylvania. The RAND Arroyo Center provides for continuing analytical research across a broad spectrum of issues and concerns, grouped in four major research areas: Strategy, Doctrine, and Resources; Military Logistics; Manpower and Training; and Force Development and Technology. The RAND Arroyo Center research agenda is primarily focused on mid/long-term concerns. Results and analytical findings directly impact senior leadership deliberations on major issues. Arroyo Center research is sponsored by the Chief of Staff, Vice Chief, the Deputy Chiefs of Staff of the Army; the Assistant Army Secretaries; and most of the Army's major commands. The Arroyo Center is provided guidance from the Army through the Arroyo Center Policy Committee (ACPC), which is co-chaired by the Vice Chief of Staff of the Army and the Assistant Secretary of the Army (Acquisition, Logistics and Technology). The ACPC reviews, monitors, and approves the annual Arroyo Center research plan. Each project requires General Officer (or SES equivalent) sponsorship and involvement on a continuing basis. RAND Arroyo provides the Army with a unique multidisciplinary capability for independent analysis. Although the Arroyo Center staff works with analysts in the Army's internal study program, the Arroyo Center is an independent organization that provides analysis for both the Army and the broader national security community. Work in this program element is consistent with the resource constrained Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance.

**FY 2001 Accomplishments:**

- 4521 Research addressing the Army's transformation including technological and programmatic assessment of the Future Combat Systems; full spectrum land force capabilities assessment; objective force analysis; technical feasibility of proposed tactical airlift systems; effectiveness of medium forces in past conflicts; human resource implications of Army transformation; joint rapid decisive operations; support to Army transformation wargaming and analysis; and supporting small and mid-sized operations.
- 4312 Research on issues being raised by the administration in its major defense review including Army capabilities to respond to future engagement requirements; globalization of multinational force compatibility programs; installation planning for weapons of mass destruction preparedness; force deployment cost comparison; modeling costs of Army force structure changes; cost effectiveness tradeoffs between Apache and Comanche; military operations on urbanized terrain; integrated modernization analysis process; alternatives to two Major-Theater Wars as force-planning constructs; force management and readiness to support multiple missions; and personnel management in support of multiple missions.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605103A - Rand Arroyo Center**

PROJECT  
**732**

## FY 2001 Accomplishments: (Continued)

- 4217 Research on reshaping support functions including improving the Army's fulfillment process; establishing better links in the supply chain; improving the Army's stockage determination process; managing training ammunition; improving Army maintenance processes; strategic actions for the Combat Support/Combat Service Support transformation; diagnosing equipment serviceability; and facilitating implementation of the single stock fund.
- 1554 Research on shaping and staffing the force including structuring U.S. combat capability for early conflict termination; keeping future Army pay competitive; collective training resources and unit readiness; officer accession and retention; assessing the Officer Personnel Management System; manning the Army Special Operations Forces; and determining training proficiency at Combat Training Centers.
- 3501 Research aimed at maintaining the Army's technological edge including improving the Army's procurement process; understanding how to do a better job in outsourcing science and technology; portfolio planning for Army programs; and expanded acquisition development strategy.
- 1000 Support a study on Army acquisition practices at the Center for Naval Analysis.

Total 19105

## FY 2002 Planned Program

- 4736 Research addressing the Army in national strategy, including implications of the New National Strategy; preparing and presenting the Army budget; developing a framework to address "gaps" between the military and the American people; assessing joint rapid decisive operations; identifying access requirements, anti-access threats, and potential counters; Objective Force performance on complex terrain; improving the Army's ability to contribute effectively to emerging homeland security initiatives; assessing the Objective Force in a wide range of warfighting scenarios; and developing and evaluating the future alliance and coalition partner environment relevant to the Army and future land operations.
- 4066 Research addressing Army transformation, including assessing FCS technology; support to transformation wargaming and analysis; assessing the contribution and importance of C4ISR to the Objective Force; analyzing future bandwidth requirements; supporting CAA in the use of JICM; developing potential strategic actions for the CS/CSS transformation; analyzing the potential benefits from the planned joint experimentation process; and assessing the feasibility of organizing the TO&E Army around brigades rather than divisions as the principal unit of operational employment.
- 2537 Research addressing people, including human resource implications of Army transformation; leader development for a transformed Army; recruiting options; officer accession and retention; and officer careers and OPMX XXI.
- 4731 Research addressing readiness, including Army rotation policy and force management; diagnosing equipment serviceability; linking improved processes and inventory to equipment readiness; identifying drivers of customer wait time; improving the training ammunition process; determining training proficiency at CTCs; reviewing and recommending changes to OPTEMPO and collective training; and recommending an implementation strategy for training development for CSS systems.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

**February 2002**

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605103A - Rand Arroyo Center**

**PROJECT**  
**732**

**FY 2002 Planned Program (Continued)**

- 3736 Research addressing business practices, including the role and limits of outsourcing; minimum military logistics capability; posturing AMC R&D organizations for a changing workforce; creating an integrated logistics business environment; sizing the Army's organic industrial base; reexamining Army acquisition; integrated modernization analysis; and coordinated acquisition of Army systems of systems.

Total 19806

**FY 2003 Planned Program**

- 7718 Research addressing the national security debate
- 6438 Research addressing shaping and staffing the force
- 6660 Research addressing reshaping support functions and infrastructure.
- 1332 Research addressing exploring technology alternatives

Total 22148

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	19689	19972	20348
Appropriated Value	19872	19972	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-166	0
b. SBIR / STTR	-585	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-182	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	1800
Current Budget Submit (FY 2003 PB)	19105	19806	22148

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>		PE NUMBER AND TITLE <b>0605301A - ARMY KWAJALEIN ATOLL</b>						PROJECT <b>614</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
614 ARMY KWAJALEIN ATOLL	147442	148825	132831	139638	142662	146081	148622	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The U.S. Army Kwajalein Atoll/Ronald Reagan Ballistic Missile Defense Test Site (USAKA/RTS), located in the Republic of the Marshall Islands, is a remote, secure activity of the Major Range and Test Facility Base (MRTFB). Its function is to support test and evaluation of major Army and DoD missile systems, and to provide Space surveillance and space object identification in support of USCINCSpace and National Aeronautics and Space Administration (NASA) scientific and space programs. Programs supported include Army missile defense, Missile Defense Agency (MDA, formerly Ballistic Missile Defense Organization) demonstration/validation tests, Air Force Intercontinental Ballistic Missile (ICBM) development and operational tests, U.S. Space Surveillance Network, and NASA Space Transportation System (Shuttle) and orbital debris experiments. The technical element of USAKA/RTS is the RTS, which consists of a number of sophisticated, one-of-a-kind, radar, optical, telemetry, command/control/communications, and data reduction systems. These systems include the four unique radars of the Kiernan Reentry Measurement Site (KREMS); Super Recording Automatic Digital Optical Tracker (SRADOT) long range video-metric tracking systems; high density data recorders for high data-rate telemetry collected by nine antennas; and underwater acoustic impact location system data analysis/reduction hardware/software. USAKA/RTS is government-owned/contractor-operated (GOCO) and is therefore totally dependent upon its associated support contractors. Program also provides funds for the contractors to accomplish installation operation and maintenance (O&M). Funding is required to maintain minimal O&M support, while accepting moderate risk of continued degradation of USAKA/RTS infrastructure (housing, offices, facilities), higher future repair costs, and reduced logistical support capability, as well as completion of the Kwajalein Modernization and Remoting (KMAR) Program. The KMAR program is a concurrent, range-wide modernization effort to maximize the use of common, standardized commercial off-the-shelf (COTS) technology to replace obsolete components; implement common hardware/software architectures and automation; and "remote" the operation of range sensors and instrumentation to the island of Kwajalein. This effort will upgrade range capabilities that are critical to the success of upcoming Theater Missile Defense (TMD) and Ground-Based Mid-Course (GMD) test missions. KMAR will also reduce USAKA/RTS annual operating costs beginning in FY 2003, as reflected in the reduced funding stream shown above. The Army, Air Force, Navy and MDA (formerly BMDO) have programs planned, which have significant test and data gathering requirements at USAKA/RTS. Air Force programs require firing from Vandenberg Air Force Base, CA with complete data collection during late mid-course and terminal trajectory. MDA programs require range sensors to collect technical data in support of GMD and TMD programs. This test data cannot be obtained except through the use of technical facilities available on and in the vicinity of USAKA/RTS. Program supports CINCSpace requirements for data collection on objects in space. The Advanced Research Project Agency (ARPA) Long-Range Tracking and Instrumentation Radar (ALTAIR), and the Target Resolution Discrimination Experiment (TRADEX) radar located at USAKA/RTS, are two of only three radars world-wide that have deep-space tracking capability. Program supports Air Force's Peacekeeper, Minuteman III, and Delta; MDA's Ground Based Interceptor (GBI), Ground Based Radar (GBR), Battle Management/Command, Control and Communications (BMC3), In-Flight Interceptor Communication System (IFICS)); Army/MDA PAC-3, System Integration of Tests, Family of Systems, Critical Measurements Program, Patriot, and ground-based radar; and NASA's Space Transportation System (STS), Orbital Debris Measurement Program, Small Expendable Deployer System and Orbital Debris Measurement Program; and the Air Force Space and Missile Center's associated programs. This activity supports the Legacy to Objective transition Campaign Plan.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)****February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support****0605301A - ARMY KWAJALEIN ATOLL****614****FY 2001 Accomplishments:**

- 9725 Provided management support (salaries, training, travel, SMDC matrix, etc.).
- 3026 Accomplished major maintenance and repair projects, including design, executed by Corps of Engineers (COE).
- 16909 Procured petroleum, oils and lubricants (POL) and Military Standard Requisitioning and Issue Procedure (MILSTRIP).
- 3774 Procured other mission operating supplies, equipment, and services.
- 7102 Provided air and sea transportation (cargo to and from continental United States).
- 34048 Continued to support Army, MDA, NASA and Air Force development and operational missile testing. Also supported operational missile testing and space surveillance support to CINCSPACE. Continued support to Kwajalein Modernization and Remoting (KMAR).
- 72858 Provided logistical support (facilities maintenance and repair, aviation, automotive, marine, medical, food services, education, information management, etc.) to self contained islands of USAKA.

Total 147442

**FY 2002 Planned Program**

- 10295 Provide management support (salaries, training, travel, SMDC matrix, etc).
- 4414 Accomplish major maintenance and repair projects, including design, executed by Corps of Engineers (COE).
- 16540 Procure POL and MILSTRIP.
- 3367 Procure other mission operating supplies, equipment and services.
- 8168 Provide air and sea transportation (cargo to and from continental United States).
- 31541 Continue to support Army, MDA, NASA and Air Force development and operational missile testing. Continue support to KMAR program.
- 74500 Provide logistical support (facilities maintenance and repair, aviation, automotive, marine, medical, food services, education, information management, etc.) to self contained islands of USAKA.

Total 148825

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605301A - ARMY KWAJALEIN ATOLL**

PROJECT  
**614**

**FY 2003 Planned Program**

- 9683 Provide management support (salaries, training, travel, SMDC matrix, etc).
- 895 Accomplish maintenance and repair projects, including design, executed by Corps of Engineers (COE).
- 16820 Procure POL and MILSTRIP.
- 3427 Procure other mission operating supplies, equipment and services.
- 8275 Provide air and sea transportation (cargo to and from continental United States).
- 25253 Continue to support Army, MDA, NASA and Air Force development and operational missile testing. Continue support to KMAR program.
- 68478 Provide logistical support (facilities maintenance and repair, aviation, automotive, marine, medical, food services, education, information management, etc.) to self contained islands of USAKA.

Total 132831

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	151920	150071	134860
Appropriated Value	153326	150071	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-1246	0
b. SBIR / STTR	-4778	0	0
c. Omnibus or Other Above Threshold Reduction	0	0	0
d. Below Threshold Reprogramming	300	0	0
e. Rescissions	-1406	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-2029
Current Budget Submit (FY 2003 PB)	147442	148825	132831

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605326A - Concepts Experimentation**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	18179	31501	22627	22536	22460	23695	22247	Continuing	Continuing
308 CONCEPTS EXPERIMENTATION	14578	14155	9354	9306	9265	10952	14877	Continuing	Continuing
312 ARMY/JOINT EXPERIMENTATION	3601	16353	9976	9945	9920	9471	4117	Continuing	Continuing
33B SOLDIER-CENTERED ANALYSES FOR THE OBJECTIVE FORCE	0	993	3297	3285	3275	3272	3253	0	17375

**A. Mission Description and Budget Item Justification:** The Concept Experimentation Program (project 308) provides the analytical rigor required to refine objective force concepts as well as underpin evidence for requirements of potential Objective Force systems. Army Experimentation funds the Army Transformation Experimentation Campaign Plan (ATECP) in support of transformation to the Objective Force (OF). The Army must conduct its own concept development and experimentation to fill its Title X core competencies as part of a DoD (Joint Force) transforming to meet Joint Vision 2020 capabilities and integrate this process with the Joint concept development and experimentation (JCD&E) process, including Army participation in major Joint experiments directed by DoD, Congressional language and the QDR. This program supports development of architecture products and experimental initiatives that develop OF capabilities and meet requirements for OF joint interoperability.



**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605326A - Concepts Experimentation**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	18738	33067	27381
Appropriated Value	18910	31767	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reduction	0	-266	0
b. SBIR/STTR	-558	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
c. Rescission	-173	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-4754
Current Budget Submit (FY 2003 PB )	18179	31501	22627

Change Summary Explanation: Funding - FY 2003: Funds were realigned in support of higher Army priorities (-4754).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>				<b>PE NUMBER AND TITLE</b> <b>0605326A - Concepts Experimentation</b>				<b>PROJECT</b> <b>308</b>	
COST (In Thousands)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to	Total Cost
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
308 CONCEPTS EXPERIMENTATION	14578	14155	9354	9306	9265	10952	14877	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Concept Experimentation Program (CEP) is a key innovative tool which provides TRADOC battle labs and schools the ability to develop and evaluate emerging warfighting concepts. Program provides the analytical rigor required to refine Objective Force concepts as well as underpin evidence for requirements of potential objective force systems. As the Army moves toward the Objective Force, the critical task of designing the force around information requires major investment in information-age capabilities. Constructive, virtual, and live simulations are used to examine warfighting concepts across Doctrine, Training, Leader Development, Organization, Materiel and Soldiers (DTLOMS) domains. They cover all aspects of command and control, lethality, survivability, and tempo and are essential to technology insertion in future Army systems and force structure.

**FY 2001 Accomplishments:**

- 3205 Mounted Maneuver Battle Lab (MMBL) Experimentation (Congressional Add)
- 445 Objective Communications Support for Reconnaissance, Surveillance and Target Acquisition.
- 375 Mobility Enhancement to Support Interim Brigade Combat Teams Communications and Tactical Operations Center Networks
- 130 Secure Wireless Local Area Network (LAN) for Brigade Combat Teams
- 500 Future Combat Command and Control Reengineering
- 550 Information Support Common Operational Picture Overlay - Information Operations and Management Information
- 113 Anticipatory Logistics
- 300 Advanced Planning System
- 450 Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Aviation Sensors and Communications Relay Mix Study
- 249 Concept of Employment for HEMTT LHS Petroleum Tank Racks
- 100 Ordnance skill consolidation
- 730 Chemical And Biological Cooperation Detection

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support****0605326A - Concepts Experimentation****308****FY 2001 Accomplishments: (Continued)**

- 330 Multi-purpose Aerial Delivery System (M-PADS) Analysis
- 450 Future Fires Command and Control
- 475 Striker II Sensor System Concept
- 760 Discretionary funding for Battle Lab Directors to quickly evaluate emerging technology.
- 815 Support for Joint Warfighting Exercise Millennium Challenge 02
- 135 Urban Future Infantry Combat Command and Control
- 251 Distribution Management Transformation
- 4215 Battle Command on the Move

Total 14578

**FY 2002 Planned Program**

- 2940 Unit of Action
- 686 Unit of Action Intelligence, Surveillance and Reconnaissance (ISR) Requirements
- 1114 Objective Force sustainment
- 686 Battle Commander's Cell
- 1029 Unit of Employment/Unit of Action Shaping the Battlespace
- 3500 Mounted Maneuver Battle Lab Experimentation to fund Cooperative and Collaborative Research Program with Kentucky Universities
- 4200 Acquisition of commercial licenses and integration support for commercial geospatial distributed data visualization and management network at the Battle Command Battle Lab at Ft. Huachuca

Total 14155

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605326A - Concepts Experimentation**

PROJECT

**308****FY 2003 Planned Program**

- 9354 Concept experimentation to be determined by September 2002 CEP Schedule and Review Committee.

Total 9354

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605326A - Concepts Experimentation</b>						<b>PROJECT</b> <b>312</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
312 ARMY/JOINT EXPERIMENTATION	3601	16353	9976	9945	9920	9471	4117	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The mission of the Army Transformation Experimentation Campaign Plan (ATECP) is to support the Army Transformation Campaign Plan by integrating Objective Force development across the Army's domains of Doctrine, Training, Leader Development, Organization, Materiel and Soldiers (DTLOMS), integrating Service experiments into, Congressionally mandated, Joint Experimentation, and increase the Army's capabilities for dominant maneuver and decisive operations while maintaining core proficiencies in those areas. ATECP objectives are: facilitate Objective Force development by providing an experimental venue to assess key issues for Objective Force Operational and Organizational concepts and future operational capabilities development, provide insights across all DTLOMS to soldiers as the Army transforms, and shape and support Joint Experimentation. Funding also supports integration of initiatives across DTLOMS and Battlefield Operating Systems (BOS) into ATECP events. Initiatives include developing system-of-systems linkages, simulation/stimulation development, system engineering and architecture development, and post experiment modeling and analyses.

**FY 2001 Accomplishments:**

- 500 System Linkages - Run Time Manager Support
- 300 Digital Combined Arms Tactical Trainer Training Support Packages
- 100 Digital Combined Arms Tactical Trainer System Linkages
- 150 Digital Combined Arms Tactical Trainer After Action Report Capability
- 520 Command, Control, Communications and Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Testbed upgrade to support Joint Experiment Millennium Challenge 02 (MC 02)
- 308 Army Battle Command System (ABCS) integration in support of ABCS Battlefield Functional Area (BFA) systems - Joint Experiment Millennium Challenge 02 (MC02)
- 1723 Development, integration and implementation of the systems architecture for Joint Experiment Millennium Challenge 02 (MC 02).

Total 3601

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605326A - Concepts Experimentation**

PROJECT

**312****FY 2002 Planned Program**

- 915 Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) execution support for Joint Experiment Millennium Challenge 02
- 350 Joint Infrastructure for Joint Experiment Millennium Challenge 02
- 150 Systems Engineering and Architecture Design for Joint Experiment Millennium Challenge 02
- 2000 Enroute Mission Planning and Rehearsal for Joint Experiment Millennium Challenge 02
- 2910 Command and Control Development for Joint Experiment Millennium Challenge 02
- 2300 Modeling and Simulation Support for Joint Experiment Millennium Challenge 02
- 1332 Architecture Engineering, integration and site support for Joint Experiment Millennium Challenge 02
- 6396 Development and site support for network support for Joint Experiment Millennium Challenge 02

Total 16353

**FY 2003 Planned Program**

- 9976 Supports Army participation in Joint Experiment Olympic Vision 03 in FY 03 and preparation for a major Joint Experiment (Olympic Challenge 04) in FY 04.

Total 9976

## ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605326A - Concepts Experimentation</b>						<b>PROJECT</b> <b>33B</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
33B	SOLDIER-CENTERED ANALYSES FOR THE OBJECTIVE FORCE	0	993	3297	3285	3275	3272	3253	0	17375

**A. Mission Description and Budget Item Justification:** This project will provide early (pre-Milestone A) application of human performance and human figure modeling tools in the development of soldier-focused requirements to shape technology for Army Transformation. Design analyses, constructive simulations and soldier-in-the-loop assessments will ensure that manpower requirements, workload and skill demands are considered, avoid information and physical task overloads, and take optimum advantage of aptitudes, individual and collective training, and numbers of soldiers for an affordable Objective Force.

**FY 2001 Accomplishments:**

Program begins in FY 2002.

**FY 2002 Planned Program**

- 993 Provide Human Factors Engineering and Manpower Integration (MANPRINT) support to TRADOC Centers, Schools and Battle Laboratories. Provide dedicated modeling and analysis cell to early and accurate MANPRINT estimates to AMC, AMC RDECs, TRADOC Centers, Schools and Battle Laboratories, ATEC and other service laboratories.

Total 993

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605326A - Concepts Experimentation**

PROJECT

**33B****FY 2003 Planned Program**

- 3297 Provide Human Factors Engineering and Manpower Integration (MANPRINT) support to TRADOC Centers, Schools and Battle Laboratories.  
Provide dedicated modeling and analysis cell to early and accurate MANPRINT estimates to AMC, AMC RDECs, TRADOC Centers, Schools and Battle Laboratories, ATEC and other service laboratories.

Total 3297



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605601A - ARMY TEST RANGES AND FACILITIES</b>						PROJECT <b>F30</b>		
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
F30 ARMY TEST RANGES & FACILITIES	120277	113451	144183	149725	171143	174600	191859	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program provides the institutional funding required to assure a developmental test capability is available for Department of Defense (DoD) Program Executive Officers, Program and Product Managers, and Research, Development, and Engineering Centers. This funding does not pay for specific test costs associated with specific programs. All functions and resources associated with this program are managed by the U.S. Army Developmental Test Command (DTC), a subordinate command of the Army Test and Evaluation Command (ATEC). DTC manages four of DoD's Major Range and Test Facility Bases:

- Yuma Proving Ground (YPG), Arizona (to include management of Army natural environmental testing)
- Aberdeen Test Center, Aberdeen Proving Ground, Maryland
- White Sands Missile Range, New Mexico (including the Electronic Proving Ground (EPG), Fort Huachuca, Arizona).
- Dugway Proving Ground, Utah (test mission funds for Dugway are provided by the Chemical Biological Defense Program (CBDP) PE 0605384BP/DW6.)

This program also provides the Army's developmental test capability at:

- Aviation Technical Test Center, Fort Rucker, Alabama
- Redstone Technical Test Center, Redstone Arsenal, Alabama
- Cold Regions Test Center, Fort Greely and Fort Wainwright, Alaska (subordinate of YPG)
- Tropic Test Site at Schofield Barracks, Hawaii (subordinate of YPG)

In addition, it provides the capability for test planning plus safety verification/confirmation at HQ, DTC located at Aberdeen Proving Ground, Maryland. Developmental test capabilities at each test range have been uniquely established, are in place to support test and evaluation (T&E) requirements of funded weapons programs, and are required to assure technical performance, adherence to safety requirements, reliability, logistics supportability, and quality of materiel in development and in production. Program funding includes efforts toward leveraging technologies to include procurement of essential equipment, personnel training and test facility modernization to support the warfighter's weapons and equipment. Current testing capabilities are not duplicated within DoD and they represent test capabilities needed to assure minimal risk to the soldier as new technologies emerge into fielded weapons systems.

This program finances indirect test operating costs not appropriately billed to test customers, replacement of test equipment and test facility modernization projects to maintain current testing capabilities and improvements to safety, environmental protection, efficiency of test operations, and technological advances. This program does not finance reimbursable costs directly identified to a user of these ranges. Direct costs are borne by materiel developers and project/product managers in accordance with DoD Directives 7000.14R and 3200.11. This program sustains the developmental test and evaluation capability to support all transition paths, Objective Force S&T, Legacy, Legacy to Objective, Interim, and Objective, of the Army Transformation Campaign Plan (TCP).

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)****February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support****0605601A - ARMY TEST RANGES AND FACILITIES****F30**

The developmental test capability provided by this program element also supports Joint Service or Other Service systems, hardware, and technologies, not just Army unique systems. Some of the programs for which this program element will provide the needed developmental test capability in the future include: Legacy Systems (to include Recapitalization and Recap/Mod)-Joint Services Lightweight Howitzer, ABRAMS, BRADLEY; Legacy to Objective Systems -Theater High Altitude Area Defense (THAAD) and Force Battle Command Brigade and Below (FBCB2); Interim System-Interim Armored Vehicle/Brigade Combat Teams; Objective Systems -COMANCHE, Future Combat Systems (FCS), HIMARS/Future Rocket System; Support of Objective Force S&T-Army Warfighting Experiments and Advanced Concept Technology Demonstrations; as well as Joint Service, Air Force/Navy programs.

**FY 2001 Accomplishments:**

- 69778 Provided for test center civilian labor and other support costs which cannot be directly identified to a specific test customer or program. These civilian personnel performed administrative and staff/management support for DTC's mission to provide developmental and other acquisition related testing of DoD materiel, weapons, and weapons systems within the acquisition cycle to include resource management, safety, surety operations, range control, Contracting Officer's Representative (COR) duties, and environmental oversight/compliance of testing activities.
- 36063 Provided for labor and supporting costs for test center contractor personnel performing administration and management of DTC's test mission contracts. This is the indirect portion of the total cost of providing contractual effort including range operations, automotive testing, radar operations and maintenance, aerial cable operations, warehousing support, data collection, data reduction, project management, aircraft maintenance, and ADP support.
- 6436 Provided for civilian and contractor labor and other support costs at DTC HQ for test planning, safety verification/confirmation function, and HQ DTC and HQ ATEC test mission management.
- 8000 Congressional increase for White Sands Missile Range Test Facility and Instrumentation Modernization for aging radar, telemetry optics, data reduction, and communications test capabilities; and developed, tested, and implemented the software interfaces required to connect range facilities and resources to the newly constructed Cox Range Control Center and the range-wide fiber optics based test support network (TSN).

Total 120277

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)****February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support****0605601A - ARMY TEST RANGES AND FACILITIES****F30****FY 2002 Planned Program**

- 68786 Provides for test center civilian labor and other support costs which cannot be directly identified to a specific test customer or program. These civilian personnel perform administrative and staff/management support for DTC's mission to provide developmental and other acquisition related testing of DoD materiel, weapons, and weapons systems within the acquisition cycle to include resource management, safety, surety operations, range control, COR duties, and environmental oversight/compliance of testing activities.
- 38311 Provides for labor and supporting costs for test center contractor personnel performing administration and management of DTC's test mission contracts. This is the indirect portion of the total cost of providing contractual effort including range operations, automotive testing, radar operations and maintenance, aerial cable operations, warehousing support, data collection, data reduction, project management, aircraft maintenance, and ADP support.
- 6354 Provides for civilian and contractor labor and other support costs at DTC HQ for test planning, safety verification/confirmation function, and HQ DTC test mission management.

Total 113451

**FY 2003 Planned Program**

- 78662 Provides for test center civilian labor and other support costs which cannot be directly identified to a specific test customer or program. These civilian personnel perform administrative and staff/management support for DTC's mission to provide developmental and other acquisition related testing of DoD materiel, weapons, and weapons systems within the acquisition cycle to include resource management, safety, surety operations, range control, COR duties, and environmental oversight/compliance of testing activities.
- 57710 Provides for labor and supporting costs for test center contractor personnel performing administration and management of DTC's test mission contracts. This is the indirect portion of the total cost of providing contractual effort including range operations, automotive testing, radar operations and maintenance, aerial cable operations, warehousing support, data collection, data reduction, project management, aircraft maintenance, and ADP support.
- 7811 Provides for civilian and contractor labor and other support costs at DTC HQ for test planning, safety verification/confirmation function, and HQ DTC test mission management.

Total 144183

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605601A - ARMY TEST RANGES AND FACILITIES**

PROJECT  
**F30**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	121532	114411	135614
Appropriated Value	122657	114411	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-960	0
b. SBIR/STTR	-1944	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	689	0	0
e. Rescissions	-1125	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	8569
Current Budget Submit (FY 2003 PB)	120277	113451	144183

Change Summary Explanation: Funding increase in FY 2003 implements legislative change directing each agency to pay the full Government share of the accruing retirement costs of current Civil Service Retirement System (CSRS) employees and the accruing health care costs of all future Federal retirees.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605602A - Army Technical Test Instrumentation and Targets**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	39094	34719	43222	55430	60917	63331	80183	Continuing	Continuing
628 TEST TECH & SUST INSTR	39094	34719	34963	45915	50867	51807	55718	Continuing	Continuing
62B OPERATIONAL TESTING INSTRUMENTATION DEVELOPMENT	0	0	6713	7626	8363	9444	12812	Continuing	Continuing
62C MODELING AND SIMULATION INSTRUMENTATION	0	0	1546	1889	1687	2080	11653	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This Program Element provides critical front-end investments for development of new test methodologies, test standards, advanced test technology concepts for long range requirements, future test capabilities, and advanced instrumentation prototypes for the United States Army Developmental Test Command (DTC), which includes: Aberdeen Test Center (ATC), Aberdeen Proving Ground, Maryland; White Sands Missile Range (WSMR), New Mexico (including the Electronic Proving Ground (EPG), Fort Huachuca, Arizona); Yuma Proving Ground (YPG), Arizona (including the Cold Regions Test Center (CRTC), Fort Greely, Alaska and the Tropical Regions Test Center, Hawaii); Aviation Technical Test Center (ATTC), Fort Rucker, Alabama; Redstone Technical Test Center (RTTC), Redstone Arsenal, Alabama; and Dugway Proving Ground (DPG), Utah. These capabilities support the development and fielding cycle of the Army Transformation as well as Joint Vision 2020 initiatives. Within this program, a major initiative called Virtual Proving Ground (VPG) is directed towards integrating Modeling, Simulation, and Internetting technologies into the test and evaluation process to support acquisition streamlining and to offset prior manpower and budget reductions. The Virtual Proving Ground will significantly improve the ability of the Army to provide early influence on system design, reduce test costs and time, and extend the envelope of information to reduce risk and acquisition costs. This initiative is critical to achieving long-term efficiencies within the acquisition process by conforming to the Simulation and Modeling for Acquisition, Requirements, and Training (SMART) and Simulation Based Acquisition (SBA) processes. Sustaining instrumentation maintains existing testing capabilities at DTC test facilities by replacing unreliable, uneconomical and irreparable instrumentation, as well as incremental upgrades of instrumentation and software, to assure adequate test data collection capabilities. This data supports acquisition milestone decisions for all commodity areas throughout the Army including programs such as Interim Armored Vehicle (IAV), Future Combat System (FCS), Theater High Altitude Area Defense (THAAD), Comanche, Patriot Advanced Capability Phase 3 (PAC 3), High Mobility Artillery Rocket System (HIMARS), M1A2 Main Battle Tank, Joint Service Lightweight Integrated Suit Technology (JSLIST), Javelin Missile System, Family of Medium Tactical Vehicles, Army Battle Command System (ABCS), Force XXI Battle Command Brigade and Below (FBCB2) and Land Warrior. This Program Element develops and sustains developmental test capabilities that provide key support to the Army's Transformation Campaign Plan (TCP). This Program Element also includes funds transferred from the Army Test and Evaluation Command's (ATEC) Operational Testing Instrumentation line, 0605712A/987, to provide greater visibility of modeling and simulation efforts. Also funds were transferred from 0605712A/987 to support development and sustainment of operational test assets at Airborne Special Operations Test Directorate, Fort Bragg; Air Defense Artillery Test Directorate Fort Bliss; Fire Support Test Directorate, Fort Sill; Intelligence Electronic Warfare Test Directorate, Fort Huachuca; and Test and Evaluation Support Agency, Fort

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605602A - Army Technical Test Instrumentation and Targets**

Hood. The development and sustainment of ATEC's Simulation Operations Rehearsal Model (STORM) is also included. Systems that will benefit from this effort are Army Tactical Command and Control System (ATCCS), Battlefield Functional Area (BFA), Advanced Field Artillery Tactical Data System Service Support Control System (AFATDS), Maneuver Control System (MCS), Forward Area Air Defense Command Control and Intelligence (FAADC2I), All Source Analysis System (ASAS), and Combat Service Support Control System (CSSCS).

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
President's Previous Budget (FY 2002 PB)	36915	34259	34651
Appropriated Value	37256	35009	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-290	0
b. SBIR / STTR	-1018	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	3198	0	0
e. Rescissions	-342	0	0
Adjustments to Budget Years Since (FY 2002 PB)	0	0	8571
Current Budget Submit (FY 2003 PB )	39094	34719	43222

Change Summary Explanation: Funding: FY 2003 - Funds were realigned from PE 0605712A, Support of Operational Testing, in order to align sustaining instrumentation funding into one program element (+8288).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605602A - Army Technical Test Instrumentation and Targets</b>					<b>PROJECT</b> <b>628</b>			
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
628	TEST TECH & SUST INSTR	39094	34719	34963	45915	50867	51807	55718	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program provides critical front-end investments for development of new test methodologies, test standards, advanced test technology concepts for long range requirements, future test capabilities, and advanced instrumentation prototypes for the United States Army Developmental Test Command (DTC), which includes: Aberdeen Test Center (ATC), Aberdeen Proving Ground, Maryland; White Sands Missile Range (WSMR), New Mexico (including the Electronic Proving Ground (EPG), Fort Huachuca, Arizona); Yuma Proving Ground (YPG), Arizona (including the Cold Regions Test Center (CRTC), Fort Greely, Alaska and the Tropical Regions Test Center, Hawaii); Aviation Technical Test Center (ATTC), Fort Rucker, Alabama; Redstone Technical Test Center (RTTC), Redstone Arsenal, Alabama; and Dugway Proving Ground (DPG), Utah. These capabilities support the development and fielding cycle of the Army Transformation as well as Joint Vision 2020 initiatives. Within this program, a major initiative called Virtual Proving Ground (VPG) is directed towards integrating modeling, simulation, and internetting technologies into the test and evaluation process to support acquisition streamlining and to offset prior manpower and budget reductions. The Virtual Proving Ground will significantly improve the ability of the Army to provide early influence on system design, reduce test costs and time, and extend the envelope of information to reduce risk and acquisition costs. This initiative is critical to achieving long-term efficiencies within the acquisition process by conforming to the Simulation and Modeling for Acquisition, Requirements, and Training (SMART) and Simulation Based Acquisition (SBA) processes. Sustaining instrumentation maintains existing testing capabilities at DTC test facilities by replacing unreliable, uneconomical and irreparable instrumentation, as well as incremental upgrades of instrumentation and software, to assure adequate test data collection capabilities. This data supports acquisition milestone decisions for all commodity areas throughout the Army including programs such as Interim Armored Vehicle (IAV), Future Combat System (FCS), Theater High Altitude Area Defense (THAAD), Comanche, Patriot Advanced Capability Phase 3 (PAC 3), High Mobility Artillery Rocket System (HIMARS), M1A2 Main Battle Tank, Joint Service Lightweight Integrated Suit Technology (JSLIST), Javelin Missile System, Family of Medium Tactical Vehicles, Army Battle Command System (ABCS), Force XXI Battle Command Brigade and Below (FBCB2) and Land Warrior. This Program Element develops and sustains developmental test capabilities that provide key support to the Army's Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605602A - Army Technical Test Instrumentation  
 and Targets**

PROJECT  
**628**

**FY 2001 Accomplishments: (Continued)**

- 12973 Continued Support of Virtual Proving Ground (VPG): Completed development of the physics-based helicopter simulation for Comanche to conduct T&E of the potential flight hazards associated with integration of new components into the aircraft. Completed development of visible and Infrared (IR) scenes to drive the scene projectors and signal injection interfaces in the Electro-Optics Target Acquisition, Electro-Optics Sensor Flight Evaluation and Infrared Simulation Test Acceptance test facilities. Continued acquisition and integration of computer workstations and software to enable conduct of virtual tests. Provided support to the Joint Modeling and Simulation System and determined its applications for test and evaluation. Initiated development and integration of common synthetic environments that include digitized terrain, signature models, disturbance environments, climatic models, and propagation models into system-level simulations. Developed a model to accurately replicate measured shock and vibration characteristics of ammunition stored on-board howitzers and to integrate real quantitative test measurements with simulation models and databases for real-time linking and visualization. Continued development of a DTC-wide High Level Architecture (HLA) compliant architecture for integrating internal and external models, software algorithms, virtual test tools, ground truth databases, and synthetic environments. Continued funding of the cooperative Technology Program Annexes (TPA) with the Army Research Lab to support development and integration of fire control and ground system platforms and other Unit Under Test simulations. Continued development of a standardization process to integrate various software components (synthetic environments, databases, data repositories, models and interfaces) to support virtual testing. Continued development of systems to merge telemetry, optics, radar, GPS, and TSPI data to support pre-test, test conduct, and post-test mission and playback analysis of large missile and air defense system test data. Continued development of a versatile information system and digital library that is integrated on-line to support testing and training requirements. Continued development of a suite of test control simulation tools and test beds which integrate actual field instrumentation data with existing simulations and models to conduct test range management, test setup, simulation model validation and test result validation. Continued development of a validated model to replicate a chemical/biological point detection system.
- 19912 Initiated/Continued Development, Acquisition and Sustainment of Critical Test Instrumentation and Equipment. Completed development of a six degree of freedom motion simulator used to perform non-destructive missile testing. Completed upgrade of a Weibel radar system used to track missiles and projectiles in extreme cold environments. Completed conversion of an optical tracker system to a single station laser tracker. Completed software upgrade of the Drone Formation Control System autopilot, control, navigation and guidance systems. Completed upgrade of the MPS-36 radars that control down range instrumentation (such as Kineto Tracking Mounts and other short-range radars) near the impact point for artillery and smart munitions testing. Completed acquisition of a digital real-time imaging system used to inspect rocket motors. Congressional Plus-up received to fund the Advanced Comprehensive Engineering Simulator (ACES) which upgrades missile debris dispersion and analysis software used for mission planning and missile flight safety analysis. Developed a common tool for stimulation of Command, Control and Communications equipment through simulated message and data traffic and controlling, collecting and storing data during large scale tests. Replaced range control instrumentation and upgraded and replaced radar, optics, telemetry and data processing equipment used in large missile testing. Continued development of an instrumentation platform to remotely collect, analyze, transmit and log Command, Control, Communications and Intelligence (C4I) message traffic.



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support**

**0605602A - Army Technical Test Instrumentation  
and Targets**

**628**

**FY 2001 Accomplishments: (Continued)**

Acquired aircraft high-speed digital cameras, airborne video recorders, video cameras, telemetry link, signal conditioning equipment and ground control data processing equipment. Upgraded portable Weibel tracking radars used for ammunition testing in harsh desert environments. Completed acquisition of micro-organism fermentor/containment chamber used for chemical/biological agent detector testing. Acquired chemical/biological agent alarm test instrumentation including chemistry lab equipment, detection library for antibodies, high sampling rate data acquisition equipment and atmospheric turbulence and surface weather measurement equipment. Acquired smoke density detectors for the fire extinguisher testing of ground vehicles, aircraft icing instrumentation, digital communications devices for missile launch complexes. Developed a prototype air-to-air munitions scoring system that supports helicopter turreted gun accuracy testing. Continued development of a high speed/high capacity wireless data communication network for C4I testing, development of a soldier-system test instrumentation suite, precision target scoring system, gun chamber/gun pointing measurement system, aircraft icing spray system and airdrop test instrumentation. Continued integration of instrumentation across test sites for centralized monitoring and control of tests, development of autonomous vehicle control and test range traffic monitoring systems, acquisition of computer workstations for data processing and analysis, development of enhanced Developmental Test/Operational Test (DT/OT) on-board vehicle instrumentation and development of a remote arming and detonating capability to support live fire vulnerability testing. Continued acquisition of electromagnetic radiation effects power amplifiers, fiber optic network links digital data and video recorders, mobile mission control instrumentation, range radios and advanced data transport and range communications capabilities.

- 1336 Prototype Instrumentation and Advanced Concepts. Provided quick reaction capability to respond to emergency requirements. Provided support for technical committees forging future instrumentation technology developments. Conducted methodology studies to improve test processes and determine future test capability requirements. Continued to develop Test Operating Procedures (TOPs) and International Test Operation Procedures (ITOPs) to ensure quality and consistency of test results throughout Army and for international cooperative applications.
- 4873 Provided management support for VPG across the command. Conducted strategic planning and developed roadmaps to guide current and future programs. Provided command-level oversight and management support for the DTC instrumentation program. Technical support included requirements development, project prioritization, and execution of investment accounts for Small Business Innovative Research, Production Base Support, Army Test Technology and Sustaining Instrumentation, Major Test and Evaluation Investment, and the Central Test and Evaluation Investment Program. Provided management and support for direct interface with the T&E Executive Agent, management of needs and solutions calls for T&E Reliance oversight, and support to the Army principal of the Test Resource Advisory Group (TRAG). Provided administrative support for the HQ DTCLocal Area Network, contracts, patents, symposia and conferences, exhibits and printing. Provided final year of funding support to the Joint Program Office (JPO) for Test and Evaluation as the tri-service Executive Agent for Test and Evaluation.

Total 39094

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support**

**0605602A - Army Technical Test Instrumentation  
and Targets**

**628**

**FY 2002 Planned Program**

- 11427 Continue Support of Virtual Proving Ground (VPG): Continue development of a suite of test control simulation tools and test beds which integrate actual field instrumentation data with existing simulations and models to conduct test range management, test setup, simulation model validation and test result validation. Develop DTC-wide requirements for visualization tools to collect and portray real-time simulations as well as support after action reviews. Acquire existing FlightLab simulation to expand the physics-based helicopter simulation for the UH-60 Black Hawk, AH-64 Apache, and CH-47 Chinook. Initiate development of a validated model to replicate remote detection modeling and simulation systems. Continue development of a DTC-wide HLA compliant architecture for integrating internal and external models, software algorithms, virtual test tools, ground truth databases, and synthetic environments. Continue developing and integrating common synthetic environments that include digitized terrain, signature and propagation models, and disturbance and climatic environments into system-level models and simulations. Complete support to the Joint Modeling and Simulation System and determine its applications for test and evaluation. Continue funding of the cooperative TPAs with the Army Research Lab to

support development and integration of fire control and ground system platforms and other Units Under Test simulations. Continue development of a standardization process to integrate various software components (synthetic environments, databases, data repositories, models, and interfaces) to support virtual testing. Continue development of a system to merge telemetry, optics, radar, GPS, and TSPI data to support mission analysis and playback of large missile and air defense system test data. Continue development of a validated model to replicate a chemical/biological point detection system. Initiate characterization of simulant/agent properties. Continue DTC-wide integration of terrain features, characteristics and functionality into system level models and simulations. Continue DTC-wide development and integration of ground truth databases, information systems, and synthetic environments into system level models and simulation. Initiate data mining capability for supporting a knowledge-based management tool. Initiate modeling of pressure transducers, accelerometer, and sensors to create ballistic model for direct and indirect firing test support.
  
- 16936 Initiate/Continue Development, Acquisition and Sustainment of Critical Test Instrumentation and Equipment. Complete acquisition of digital cameras, computer workstations and data processing systems used in ground vehicle testing and digital video systems, high-speed digital cameras, and telemetry link used in aircraft testing. Complete acquisition of wind turbulence measurement equipment used in chemical/biological agent alarm testing. Complete acquisition of fiber optic links and digital end devices supporting small missile testing. Complete development of an instrumentation platform to remotely collect, analyze, transmit and log C4I message traffic, development of a high speed/high capacity wireless data communication network, digital trunking and microwave system for C4I testing. Complete development of a prototype air-to-air munitions scoring system that supports helicopter turreted gun accuracy testing. Initiate development/acquisition of: an optical data measurement system to analyze missile flight position data; digital optical instrumentation for Kineto Tracking Mounts (KTM) and mobile video instrumentation and control equipment used for tracking and capturing event data on large missiles; instrumentation for nuclear effects, directed energy tests, electromagnetic environment effects and vibration environments for missile testing and digital ground-to-air radios, mobile communications equipment and digital end devices for

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support**

**0605602A - Army Technical Test Instrumentation  
and Targets**

**628**

**FY 2002 Planned Program (Continued)**

communications and data transport. Initiate development of a helicopter fire control scoring capability for air-to-ground testing, acquisition of portable infrared and video tracking equipment for munitions testing, and replacement computer control and video tracking equipment for KTMs supporting munitions testing. Upgrade an environmental conditioning chamber used to condition small missiles prior to launch. Continue to replace range control instrumentation and upgrade and replace radar, optics, telemetry and data processing equipment used in large missile testing. Acquire aircraft signal conditioning equipment and ground control data processing equipment. Upgrade portable Weibel tracking radars used for ammunition testing in harsh desert environments. Acquire chemical/biological agent alarm test instrumentation including chemistry lab equipment, detection library for antibodies, computer workstations and high sampling rate data acquisition equipment. Acquire instrumentation and equipment for fire extinguisher testing. Continue development of a soldier-system test instrumentation suite, precision target scoring system, gun chamber/gun pointing measurement system, aircraft icing spray system and airdrop test instrumentation. Continue integration of instrumentation across test sites for centralized monitoring and test control, development of autonomous vehicle control and test range traffic monitoring systems, development of enhanced DT/OT on-board vehicle instrumentation and development of a remote arming and detonating capability to support live fire vulnerability testing. Continue acquisition of electromagnetic radiation effects power amplifiers and antennas, digital data and video recorders for small missile launch and in-flight data collection, mobile mission control instrumentation for ammunition testing, range radios and advanced data transport and range communications capabilities.

- 1220 Prototype Instrumentation and Advanced Concepts. Provide quick reaction capability to respond to emergency requirements. Provide support for technical committees forging future instrumentation technology developments. Continue to develop TOPs and ITOPs to ensure quality and consistency of test results throughout Army and for international cooperative applications.
- 5136 Provide management support for VPG across the command. Conduct strategic planning and develop roadmaps to guide current and future programs. Provide command-level oversight and management support for the DTC instrumentation program. Technical support includes requirements development, project prioritization, and execution of investment accounts for Small Business Innovative Research, Production Base Support, Army Test Technology and Sustaining Instrumentation, Major Test and Evaluation Investment, and the Central Test and Evaluation Investment Program. Provide management and support costs for direct interface with the T&E Executive Agent, management of needs and solutions calls for T&E Reliance oversight, and support to the Army principal of the TRAG. Provide support for the HQ DTC Local Area Network, contracts, patents, symposia and conferences, exhibits and printing.

Total 34719

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605602A - Army Technical Test Instrumentation  
and Targets**

PROJECT

**628**

## FY 2003 Planned Program

- 11767 Continue Support of Virtual Proving Ground (VPG): Continue development of a suite of test control simulation tools and test beds which integrate actual field instrumentation data with existing simulations and models to conduct test range management, test setup, simulation model validation and test result validation. Continue development of a DTC-wide HLA compliant architecture for integrating internal and external models, software algorithms, virtual test tools, databases, and synthetic environments. Continue funding of the cooperative TPAs with the Army Research Lab to support development and integration of fire control and ground system platforms and other Units Under Test simulations. Continue development of a standardization process to integrate software components (synthetic environments, databases, data repositories, models, and interfaces) for virtual testing. Continue developing and integrating common synthetic environments that include digitized terrain, signature and propagation models, disturbance and climatic environments, virtual battlespace generation, and human effects into system-level models and simulations. Initiate distributing of the synthetic environments via HLA Environment Federation. Continue development of a system to merge telemetry, optics, radar, GPS, and TSPI data to support mission playback, analysis, and reporting tool of large missile and air defense system test data. Continue development of a validated model to replicate a chemical/biological point detection system and characterization of simulat/agent properties. Continue DTC-wide development and integration of ground truth databases, information system, and synthetic environments into system level models and simulation. Continue development of a simulation model to accurately measure shock and vibration characteristics of ammunition stored on-board howitzers. Continue to acquire visualization tools to collect and portray real-time simulations as well as support after action reviews. Continue development and initiate a mobile version of the visible and IR scenes to drive the scene projectors and signal injection interfaces in the Electro-Optics Target Acquisition, Electro-Optics Sensor Flight Evaluation and Infrared Simulation Test Acceptance test facilities. Develop an integrated suite of C4I test tools to support distributed developmental and operational tests, experiments, and training exercises, to include range operations and control capability. Continue development of data mining capability for supporting a knowledge-based management tool. Develop models of pressure transducers, accelerometer, and sensors to create ballistic and target modeling for direct and indirect firing test support.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

6 - Management support

PE NUMBER AND TITLE

0605602A - Army Technical Test Instrumentation  
and Targets

PROJECT

628

## FY 2003 Planned Program (Continued)

- 16954 Initiate/Continue Development, Acquisition and Sustainment of Critical Test Instrumentation and Equipment. Initiate acquisition of instrumentation for reliability, availability and maintainability data collection on ground vehicle systems, replacement ballistic transducers for measuring chamber pressures during ammunition tests, modification of a rail delivery system supporting live fire tests and acquisition of high bandwidth signal conditioners for on-vehicle data collection. Initiate upgrade of power amplifiers on vibration shaker tables. Initiate integration of lab equipment used for testing infrared guidance systems. Initiate acquisition of large capacity data storage devices for small missile system testing. For large missile system tests, initiate acquisition of chemistry lab equipment for analyzing hazardous wastes, radar transponders for high accuracy missile tracking and upgrade to Global Positioning System equipment for position location. For C4I testing, initiate development of distributed communications test capabilities and upgrade of test tools for message/data traffic simulation/stimulation. Support development of common instrumentation for developmental and operational testing within all test commodity areas. Continue to replace range control instrumentation and upgrade and replace radar, optics, telemetry and data processing equipment used in large missile testing. Acquire aircraft data recorders, signal conditioning equipment and ground control data processing equipment. Upgrade portable Weibel tracking radars used for ammunition testing in harsh desert environments. Acquire chemical/biological agent alarm test instrumentation including chemistry lab equipment, detection library for antibodies, computer workstations and high sampling rate data acquisition equipment. Continue development of a soldier-system test instrumentation suite, precision target scoring system, gun chamber/gun pointing measurement system, aircraft icing spray system and airdrop test instrumentation. Continue integration of instrumentation across test sites for centralized monitoring and control. Continue development of autonomous vehicle control and test range traffic monitoring systems, development of enhanced DT/OT on-board vehicle instrumentation and development of a remote arming and detonating capability to support live fire vulnerability testing. Continue acquisition of electromagnetic radiation effects power amplifiers and antennas, digital data and video recorders for small missile launch and in-flight data collection, mobile mission control instrumentation for ammunition testing, range radios, advanced data transport, and range communications capabilities. Continue development/acquisition of: an optical data measurement system to analyze missile flight position data; digital optical instrumentation for Kineto Tracking Mounts (KTM) and mobile video instrumentation and control equipment used for tracking and capturing event data on large missiles; instrumentation for nuclear effects, directed energy tests, electromagnetic environment effects for missile testing and digital end devices for communications and data transport. Continue development of a helicopter fire control scoring for air-to-ground testing, and replacement computer control and video tracking for KTMs supporting munitions testing.
- 912 Prototype Instrumentation and Advanced Concepts. Provide quick reaction capability to respond to emergency requirements. Provide support for technical committees forging future instrumentation technology developments. Continue to develop TOPs and ITOPS to ensure quality and consistency of test results throughout Army and for international cooperative applications.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605602A - Army Technical Test Instrumentation  
and Targets**

PROJECT

**628****FY 2003 Planned Program (Continued)**

- 5330 Provide management support for VPG across the command. Conduct strategic planning, and develop roadmaps to guide current and future programs. Provide command-level oversight and management support for the DTC instrumentation program. Technical support included requirements development, project prioritization, and execution of investments accounts for Small Business Innovation Research, Production Base Support, Army Test Technology and Sustaining Instrumentation, Major Test and Evaluation Investment, and the Central Test and Evaluation Investment Program. Provide management and support costs for direct interface with the T&E Executive Agent, management of needs and solutions calls for T&E Reliance oversight, and support of the Army principal of the TRAG. Provide administrative support for HQ DTC Local Area Network, contracts, patents, symposia and conferences, exhibits and printing.

Total 34963

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)**

**February 2002**

BUDGET ACTIVITY <b>6 - Management support</b>		PE NUMBER AND TITLE <b>0605602A - Army Technical Test Instrumentation and Targets</b>						PROJECT <b>62B</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
62B	OPERATIONAL TESTING INSTRUMENTATION DEVELOPMENT	0	0	6713	7626	8363	9444	12812	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Provides for technical upgrades and maintenance of essential operational test instrumentation. Funding supports development and sustainment of cost effective technologies: data collection, data processing, telemetry, miniaturization, synthetic jammers, embedded instrumentation, mobile instrumentation, information assurance, and electronic warfare. As digitization of the battlefield continues, this effort allows ATEC to modernize and develop its non-major instrumentation so that it can be integrated with automated instrumentation and combat simulation capability within the operational tests. This project supports development and sustainment of operational test assets at the Airborne Special Operations Test Directorate, Fort Bragg; the Air Defense Artillery Test Directorate, Fort Bliss; the Fire Support Test Directorate, Fort Sill; the Intelligence Electronic Warfare Test Directorate, Fort Huachuca; and the Test and Evaluation Support Agency, Fort Hood. Funding originally programmed within the Operational Testing Instrumentation (0605712A/987) line, these funds were realigned to this new project in order to provide visibility of the development of operational testing instrumentation.

**FY 2001 Accomplishments:**

Program funded in 0605712A/987.

**FY 2002 Planned Program**

Program funded in 0605712A/987.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605602A - Army Technical Test Instrumentation  
and Targets**

PROJECT  
**62B**

## FY 2003 Planned Program

- 6713 Planned projects include Improved Field Data Collector Enhancements, Multi- Media Data Transfer System Enhancements, Common Vehicular Instrumentation Initiative, High Speed Telemetry System, Global Positioning System (GPS) Modernization, Video Tracking System Upgrade, Automated Intelligence/ Electronic Warfare Test System (AI/EWTS Multiple Emitter Capability), Video Telemetry Recording System and Electro-Optic Facility Instrumentation.

Total 6713



**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)**

**February 2002**

BUDGET ACTIVITY <b>6 - Management support</b>		PE NUMBER AND TITLE <b>0605602A - Army Technical Test Instrumentation and Targets</b>						PROJECT <b>62C</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
62C	MODELING AND SIMULATION INSTRUMENTATION	0	0	1546	1889	1687	2080	11653	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project provides a critical foundation necessary to develop and sustain ATEC's current and future modeling and simulation (M&S) instrumentation efforts. ATEC's M&S efforts include: Simulation Testing Operations Rehearsal Model (STORM), Fire Support Automated Test Suite (FSATS), Extensible C4I Instrumentation Suite-Fire Support Application (ExCIS), Command, Control and Communication Driver (C3Driver), Intelligence Modeling and Simulation for Evaluation (IMASE) C3I Engineering Evaluation System (CEES), and OTC Analytic Simulation-Instrumentation Suite (OASIS). Systems that will benefit from this effort include, but are not limited to Interim Armored Vehicle (IAV), Army Tactical Command and Control System (ATCCS), Battlefield Functional Area (BFA), Advanced Field Artillery Tactical Data System (AFATDS), Maneuver Control System (MCS), Forward Area Air Defense Command Control and Intelligence (FAADC2I), All Source Analysis System (ASAS), and Combat Service Support Control System (CSSCS). Funding originally programmed within the Operational Testing Instrumentation (0605712A/987) line, these funds were realigned to this new project in order to provide greater visibility to modeling and simulation efforts.

**FY 2001 Accomplishments:**

Program funded in 0605712A/987.

**FY 2002 Planned Program**

Program funded in 0605712A/987.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605602A - Army Technical Test Instrumentation  
and Targets**

PROJECT

**62C****FY 2003 Planned Program**

- 1546 Funds development and sustainment of high priority modeling and simulation instrumentation systems, such as the Simulation Testing Operations Rehearsal Model (STORM).

Total 1546

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605604A - Survivability/Lethality Analysis**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	38326	34514	39200	42174	45324	38916	46136	Continuing	Continuing
670 EMERGING TECH SYSTEMS	8251	7481	382	336	331	321	311	0	38310
671 AIR DEF/MSL DEF SYSTEM	5790	5325	459	411	405	393	381	0	39172
672 AVIATION SYSTEMS	2753	2977	274	239	237	230	222	0	22048
675 ARMY SURVIVABILITY ANALYSIS & EVALUATION SUPPORT	11954	8487	37214	40402	43574	37218	44491	Continuing	Continuing
677 GROUND COMBAT SYSTEMS	4381	4698	373	330	326	317	308	0	36011
678 MUNITIONS SYSTEMS	4744	5065	448	410	406	393	381	0	35777
679 SOLDIER SYSTEMS	453	481	50	46	45	44	42	0	4372

**A. Mission Description and Budget Item Justification:** This Program Element (PE) funds activities and functions to conduct objective and integrated survivability and lethality analyses (SLA) on systems of the Interim and Objective Forces of Army Transformation and other major and designated non-major Army systems as appropriate. The analyses quantify the effects of electronic warfare (EW) and ballistic battlefield threats and meteorological conditions on Army individual soldiers and systems. This PE also funds vulnerability assessments of digitized systems for Force XXI. The work is accomplished through threat research, theoretical and engineering analyses, signature measurements, modeling, simulations, laboratory experiments, and field investigations. Activities in progress include assessment of the effects of atmospheric, passive countermeasures, tactics, lasers, high-power microwave, electro-optical/radio frequency (EO/RF) jammers, electromagnetic environment effects (E3), information warfare (IW), decoys, and conventional ballistics on Army soldiers and systems. The PE work efforts provide U.S. Army decision makers, materiel and combat developers, system users, and independent evaluators critical soldier and system survivability analyses that quantify the soldier/system's survivability effectiveness in battlefield threat environments. Recommendations are provided to the materiel and combat developers on how to mitigate soldier/system deficiencies and enhance their survivability. This survivability/lethality engineering analyses is required to support the Army's vision to move to lighter more deployable systems while maintaining effectiveness. The analysis is required to properly down-select the appropriate mix of technologies for future platforms of the Transformed Forces. The proper mix of lethality and survivability provides the required force effectiveness for the Transformation Force. This PE funds civilian salaries, travel, development and maintenance of equipment and facilities, general management, administrative and contractor support required for program execution. The U.S. Army Research Laboratory (ARL) Survivability/Lethality Analysis Directorate (SLAD) conducts this effort.

This PE provides support for all transition paths of the Transformation Campaign Plan (TCP).

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605604A - Survivability/Lethality Analysis**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	36905	27794	34558
Appropriated Value	37248	34794	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-280	0
b. SBIR / STTR	-680	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	2100	0	0
e. Rescissions	-342	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	4642
Current Budget Submit (FY 2003 PB )	38326	34514	39200

Change Summary Explanation: Funding: FY 2003 - Army funding increase provides survivability analysis support for Transformation Campaign Plan (+2204). Funding increase implements legislative change directing each agency to pay the full Government share of the accruing retirement costs of current Civil Service Retirement System (CSRS) employees and the accruing health care costs of all future Federal retirees (+2438).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605604A - Survivability/Lethality Analysis</b>						<b>PROJECT</b> <b>675</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
675	ARMY SURVIVABILITY ANALYSIS & EVALUATION SUPPORT	11954	8487	37214	40402	43574	37218	44491	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Beginning in FY 2003 funding was transferred into this project from other projects internal to this PE in order to more efficiently fund holistic survivability analysis needed for the Army's Transformation Campaign Plan and therefore should not be perceived as an unjustified growth for this project. This project funds the investigation of the survivability, lethality and vulnerability (SLV) of designated Army systems to all battlefield threats. It supports transforming the Army to a highly effective mobile force depending on symmetry between Survivability, Lethality, Mobility, MANPRINT, Deployability, and Sustainability. The challenge of the Army Transformation is to examine holistically the contribution of platforms to force effectiveness. This project provides lethality and survivability data of potential systems in the Interim and Objective Forces to achieve symmetric mix of force effectiveness. The analysis is integrated across all battlefield threats (i.e., conventional ballistic, electronic warfare, and directed energy). The results are used by each Project Manager (PM) and the Program Executive Officer (PEO) to direct weapon system development efforts and structure product improvement programs; by the independent evaluator when they provide system evaluations in support of milestone decisions; by the user to develop survivability/lethality requirements, doctrine and tactics; and by decision makers in formulating program/production decisions.

Additionally this project supports survivability analysis, information warfare, and information operations of Army communications, electronic equipment and digitized forces against friendly and enemy threats. Provides field threat environment support for Electronic Warfare Vulnerability Analysis (EWVA). Analyzes vulnerabilities of foreign threat weapons and command, control, communications, computers and intelligence (C4I) and Intelligence Electronic Warfare (IEW) systems to U.S. Army EW systems. Provides threat weapon electronic design data to countermeasure developers and technical capability information to the intelligence community. Supports Army initiatives in vulnerability reduction of C4I/IEW systems against battlefield threats, including information warfare. Provides analysis for understanding potential vulnerabilities of Digitized Force developmental systems. Supports Army Warfighting Experiments and associated Information Operations Vulnerability Assessments for Digitized Force Architecture. Supports vulnerability analysis of situational awareness data of the Transformation Force.

Analysis includes survivability and vulnerability analysis of ground systems of the Interim and Objective Force for Army Transformation and other Army ground combat; Army air defense and missile defense systems; Army aviation systems and Unmanned Aerial Vehicles (UAV); Army fire support weapons (smart and conventional); Horizontal Technology Integration systems, Advanced Technology Demonstration initiatives, and proposed survivability enhancements to weapon platforms.

This PE provides support for all transition paths of the Transformation Campaign Plan (TCP).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605604A - Survivability/Lethality Analysis**

PROJECT

**675**

## FY 2001 Accomplishments:

- 1153 Conducted integrated electronic and information operations effects survivability analysis for U.S. Army command and control systems. Conducted information operations vulnerability analysis. This effort supports the Advanced Field Artillery Tactical Data System, Common Hardware and Software, Maneuver Control System, FAAD-C2I, All Source Analysis System, Combat Service Support Control System, FBCB2 (Applique), and Advanced Missile Defense Warning System.
- 1487 Conducted integrated electronic and information operations survivability analysis for U.S. Army communications systems such as Warfighter Integrated Network- Terrestrial, Single Channel Anti-jam Man Portable radio, Secure Mobile Anti-jam Reliable Tactical Terminal, the Near Term Digital Radio, Joint Tactical Radio System, and SINGARS ASIP, EPLR-VHSIC, SPITFIRE, GBS, and ISYSCON.
- 750 Expanded the current information warfare vulnerability assessment program to determine exploitable weakness in the Defense Information Infrastructure Common Operating Environment
- 650 Conducted integrated electronic and NBC effects survivability analysis for U.S. Army IEW systems such as the Enhanced Firefinder radar, Navigational Warfare Ground Positioning System (NAVWAR), Defense Advanced GPS Receivers (DAGR) and Prophet. Conducted information operations vulnerability analysis for these systems.
- 2500 Expanded Information Operations Vulnerability Survivability Analysis (IOVSA) system assessments beyond electronic warfare, malicious codes and hackers to include survivability of the First Digitized Corp (FDC), Brigade Combat Team, and other Army systems to directed energy and unintentional radiation/emissions deterrence.
- 5414 Established an initial set of IOVSA analytical tools, techniques and methodologies to address the shortfall of current tools that focus only on the functionality of a system. Improved tools and techniques will provide a rigorous approach to consider the impact of the threat not only on the physical system but also on decisions being made with the information that the system is providing.

Total 11954

## FY 2002 Planned Program

- 4000 A new set of analytical tools, techniques and methodologies are being developed to address a shortfall in current IOVSA methodologies. Instead of focusing on only the IO threat to the functionality of a system, the new approach considers the impact of the threat on decisions being made with data that the information systems generates. These funds develop the format and logic content for the decision-making processes for each of the following: C2 node, DF weapons node, sensor node, and red tank node. Additionally, define, develop, and test a set of vulnerability metrics that measure vulnerabilities and susceptibilities for given C2 strategies and scenarios.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605604A - Survivability/Lethality Analysis**

PROJECT

**675**

## FY 2002 Planned Program (Continued)

- 2064 Conduct limited integrated electronic and information operations effects survivability analysis for U.S. Army command and control systems. Conduct information operations vulnerability analysis. This effort supports the FBCB2 System, Advanced Field Artillery Tactical Data System, Maneuver Control System, FAAD-C2I, All Source Analysis System, the Information System Controller, Advanced Missile Defense Warning System and ABCS Foundation Products development.
- 1298 Conduct integrated electronic and information operations survivability analysis for U.S. Army communications systems such as Warfighter Integrated Network- Terrestrial, the Near Term Digital Radio, Joint Tactical Radio System, and SINCGARS ASIP, EPLR-VHSIC, MIDS, and TACLANE
- 579 Conduct integrated electronic and ballistic effects survivability analysis for U.S. Army IEW systems such as the ICIDS, Joint Tactical Terminal and GPS. Conduct information operations vulnerability analysis for these systems.
- 546 Continue information warfare vulnerability assessment program to further determine exploitable weakness in the Digitized Forces to include FCS and to recommend mitigating solutions. Focus on components of the FDD/FDC and determines the limitations of system performance in information warfare (IW) threat environment. Update of information warfare vulnerability database, and perform vulnerability analyses of selected Tactical Internet components to radio frequency directed energy weapons (RFDEW).

Total 8487

## FY 2003 Planned Program

- 8143 Conduct integrated survivability, lethality, and vulnerability analyses on Army Transformation systems. Continue to support Interim Armored Vehicle (IAV) Live Fire Test and Evaluation (LFT&E) for the second set of variants/configurations (perform damage assessments, post-shot analyses and input to Independent Evaluation). Complete non-ballistic survivability/lethality analysis for the second group of IAV variants/configurations. Initiate LFT&E support for the third group of IAV variants/configurations (perform shot predictions, damage assessments, post-shot analyses and input to Independent Evaluation). Initiate survivability analyses for the third group of IAV variants/configurations. Initiate analysis of the Pre-Planned Product Improvements (P3I) of the IAVs.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605604A - Survivability/Lethality Analysis</b>	PROJECT <b>675</b>
--------------------------------------------------	---------------------------------------------------------------------------	-----------------------

**FY 2003 Planned Program (Continued)**

- 10842 Conduct Information Operation Vulnerability Survivability Analysis. Conduct integrated electronic and information operations effects survivability analysis on command and control systems. This effort supports the full set of Army Battle Command Systems: FBCB2, Advanced Field Artillery Tactical Data System, Maneuver Control System, FAAD-C2I, All Source Analysis System, Combat Service Support Control System, and Advanced Missile Defense Warning System. Continue to expand information warfare vulnerability assessment program to determine exploitable weakness in the Digitized Forces (including FCS) and recommend mitigating solutions. Focus on components of the FDC and determine the limitations of system performance in information warfare (IW) threat environment. Conduct integrated electronic and information operations survivability analysis for U.S. Army communications systems such as Warfighter Integrated Network- Terrestrial, the Near Term Digital Radio, Joint Tactical Radio System, and SINCGARS ASIP, EPLR-VHSIC. Includes update of information warfare vulnerability database, and vulnerability analyses of Tactical Internet components to radio frequency directed energy weapons (RFDEW).
- 5511 Conduct integrated survivability, lethality, vulnerability analyses for developmental air defense and missile defense systems, pre-planned product improvements of current systems, and recently fielded systems. Systems to be addressed include Ground-based Missile Defense (GMD), Theater High Altitude Air Defense (THAAD), Patriot, Medium Extended Air Defense System (MEADS) and SHORAD. Provide interim survivability reports. Recommend survivability enhancements. Project also funds Anti-Radiation Missile (ARM) Counter-Arm efforts that assess threat technologies against THAAD and GMD, Patriot, MEADS, and Forward Area Air Defense-C21 (FAAD-C21) ground based sensors. Includes work on Focal Plane Array Countermeasures (FPACM) (Partner: United Kingdom): Continue characterization and assessment of advanced focal plane array missile seekers and develop electronic countermeasures (ECM) to defeat them through simulation, modeling and lab testing. Conduct lab and field investigations to refine countermeasure techniques.
- 7043 Conduct integrated survivability, lethality, and vulnerability analyses for Army Modernization/Recapitalization systems. Complete Abrams SEP Configuration laser susceptibility assessments. Complete CH-47F LFT&E survivability evaluation. Prepare multi-threat survivability analysis data for CH-47F milestone C decision. Provide Blackhawk and Apache LFT&E support. Conduct electronic warfare vulnerability assessments for developmental U.S. Army munition systems such as ATACMS, BAT P3I, TOW Fire and Forget, Longbow Hellfire P3I, Modernized HELLFIRE/Common Missile, WAM PIP and TERM. Conduct ballistic survivability/lethality analysis for U.S. Army munitions systems to include BAT P3I, TOW Fire and Forget, TERM, LOSAT, Guided MLRS, Modernized HELLFIRE/Common Missile, WAM PIP and M829. Conduct obscurant and atmospheric effects survivability analysis for U.S. Army munitions systems.
- 5675 Conduct integrated survivability, lethality, and vulnerability analyses for Army Future Combat System (FCS) and Objective Force systems. Initiate modeling, analysis and simulation efforts supporting the second phase of FCS program, to include Active Protection Systems (APS), FCS Lethality, FCS Counter APS, FCS Materials Analysis, and ballistic projection of FCS new armors. Further support FCS program by providing documentation and briefings on survivability of concepts in support of the milestone B Defense Acquisition Board process. Continue Comanche Army qualification tests.

Total 37214



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>				<b>PE NUMBER AND TITLE</b> <b>0605605A - DOD High Energy Laser Test Facility</b>				<b>PROJECT</b> <b>E97</b>	
COST (In Thousands)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to	Total Cost
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
E97 DOD HELSTF	36145	23188	14410	17173	17622	18706	19171	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The High Energy Laser Systems Test Facility (HELSTF) provides a one-of-a-kind, broad based high energy laser (HEL) test and evaluation capability which directly supports testing of laser variants of the Future Combat System (FCS). Specifically, HEL weapons may be part of the Extended Area Air Defense (EAAD) system, a key component of the Objective Force supporting Full Dimensional Protection. Candidate HEL programs include Mobile Tactical High Energy Laser (MTHL) and Solid State Heat Capacity Laser (SSHCL). HELSTF is a DoD Major Range and Test Facility Base (MRTFB) and supports Tri-Service HEL research and development, and damage, vulnerability, propagation, and lethality laser testing, and HEL weapon developmental and operational test and evaluation (T&E). The HELSTF's laser development support capabilities include a certified HEL test range, a fully integrated laser support facility, an extensive array of fully instrumented test sites, full laser meteorological support, and the only site for above-the-horizon dynamic HEL testing certified for predictive avoidance by the Laser Clearing House. HELSTF facilities include the Sea Lite Beam Director (SLBD), the Mid-Infrared Advanced Chemical Laser (MIRACL), the Laser Device Demonstration (LDD), the 10KW SSHCL testbed, and the Low Power Chemical Laser (LPCL). HELSTF supports the Pulsed Laser Vulnerability Test System and the Tactical High Energy Laser (THEL) Demonstrator. This multiple use facility supports testing of laser effects for targets ranging from material coupon testing up through full-scale flying targets. HELSTF has embarked on its own transformation to develop state-of-the-art HEL diagnostic capabilities, data reduction, and a mobile diagnostic test suite to support testing for potential HEL weapons in the Army Objective Force. This modernization will create a more efficient and versatile HEL T&E facility, which will also benefit the development and testing of other Service material solutions using HEL technologies.

**FY 2001 Accomplishments:**

- 16875 Performed operation, maintenance and base operations support functions in support of the Army, DoD and other agencies conducting high energy laser systems concept development studies and test and evaluation on candidate high energy laser weapons systems (THEL, its follow-on, Mobile-THEL, other laser programs). Fully integrated the 10kW SSHCL device into HELSTF testbed and conducted material coupon testing to generate a validated engineering model. Continued to support SMDC military utility analysis, continued safety control system upgrades to integrate other HEL technologies, and initiated investigation of a mobile diagnostic capability to support HEL testing on other parts of WSMR or at other DoD test facilities. Conducted a MIRACL proficiency test which supported SMDC and USAF HEL programs as adjunct tests. Conducted a variety of tracking tests with SLBD to support THEL, USAF and BMDO missions.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605605A - DOD High Energy Laser Test Facility**

PROJECT

**E97**

## FY 2001 Accomplishments: (Continued)

- 19270 Continued Solid State Laser (SSL) Program - Tested laser diode pumped single subscale disk. Integrated laser diodes onto two full-scale disks. Diodes were lensed at 45 degrees in compact architecture. This limited gain system was fully characterized. Laser diodes were produced at volume and were lensed. Additional technology supporting mobilized prototype was advanced including large scale crystal development, compact pulsed power, and thermal control. \$5M was used to produce the laser diodes. \$3M was used by the Electro Optics Center to test and lens the laser diodes.

Total 36145

## FY 2002 Planned Program

- 14570 Perform operation, maintenance and base operations support functions in support of the Army, DoD and other agencies conducting high energy laser systems concept development studies and test and evaluation on candidate high energy laser weapons systems (THEL, Mobile-THEL, Airborne Tactical Laser (ATL), (both Army and Air Force), Air Force Airborne and Space-Based Laser, Navy HEL Low Aspect Target Tracking (HEL-LATT) and other laser programs). Continue lethality testing as well as propagation experiments using the 10KW flash lamp pumped SSHCL in accordance with the lethality and propagation test program. Continue military utility analysis (to include participation in JFCOM Millennium Challenge 02), continue safety and control system upgrades to integrate other HEL technologies, and development of a mobile diagnostic capability. Conduct a variety of tracking tests with SLBD to support SMDC, USAF and MDA (formerly BMDO) missions.
- 8618 Continued Solid State Laser (SSL) Program.

Total 23188

## FY 2003 Planned Program

- 14410 Perform operation, maintenance and base operations support functions in support of the Army, Department of Defense and other agencies conducting high energy laser systems concept development studies and test and evaluation on candidate high energy laser weapons systems (Mobile-THEL, Army & USAF ATL, Air Force Airborne and Space-Based Laser, Navy HEL-LATT, other laser programs). Prepare for integration of a 100KW SSHCL under development by the Army. Conduct a variety of tracking tests with SLBD to support SMDC, USAF and MDA missions.

Total 14410

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605605A - DOD High Energy Laser Test Facility**

PROJECT  
**E97**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	37177	14570	14356
Appropriated Value	37521	23370	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-182	0
b. SBIR / STTR	0	0	0
c. Omnibus or Other Above Threshold Reduction	-1075	0	0
d. Below Threshold Reprogramming	43	0	0
e. Rescissions	-344	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	54
Current Budget Submit (FY 2003 PB)	36145	23188	14410

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605606A - AIRCRAFT CERTIFICATION</b>						<b>PROJECT</b> <b>092</b>		
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
092 AIRCRAFT CERTIFICATION	3140	3552	4062	3906	4030	3994	4107	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** This program performs all engineering functions essential for certifying the airworthiness of assigned Army aircraft. Performs safety-of-flight investigations/assessments and issues messages to the field. Manages/executes the Army's Aeronautical Design Standards (ADS) Program; ADS is a continuously evolving process incorporating revisions for each change to the standard design of an aircraft system. Manages airworthiness approval of new vendor qualification/testing on fielded aircraft and material changes for all assigned Army aircraft systems. Provides airworthiness-engineering support to the Army Aviation Program Executive Office (PEO) and the Army Aviation and Missile Command Program/Project/Product Manager requirements for major development/modification and any future system/subsystems. Manages the test and evaluation process to support airworthiness qualification of developmental and fielded aircraft systems. This project funds activities required for general research and development support of aircraft qualifications. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 1016 Managed/executed technical airworthiness (AW) qualification missions for PEO Aviation/force modernization aircraft systems.
- 960 Continued to ensure safety-of-flight (SOF) investigations/assessments to include PEO Aviation/force modernization aircraft systems.
- 159 Managed/executed the Army Aeronautical Design Standards Program.
- 772 Provided continuing engineering support for technology upgrades to PEO Aviation/force modernization aircraft systems.
- 233 Continued to provide test management capability for PEO Aviation Program/Project/Product Managers.

Total 3140

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605606A - AIRCRAFT CERTIFICATION**

PROJECT

**092****FY 2002 Planned Program**

- 1144 Manage/execute technical and AW qualification mission for PEO Aviation/force modernization aircraft systems.
- 1131 Continue to ensure SOF investigations/assessments to include PEO Aviation/force modernization aircraft systems.
- 175 Manage/execute the Army Aeronautical Design Standards Program.
- 852 Provide continuing engineering support for technology upgrades to PEO Aviation/force modernization aircraft systems.
- 250 Continue to provide test management capability for PEO Aviation Program/Project/Product Mangers.

Total 3552

**FY 2003 Planned Program**

- 1359 Manage/execute technical and AW qualification missions for PEO Aviation/force modernization aircraft systems.
- 1351 Continue to ensure SOF investigations/assessments to include PEO Aviation/force modernization aircraft systems.
- 191 Manage/execute the Army Aeronautical Design Standards Program.
- 890 Provide continuing engineering support for technology upgrades to PEO Aviation/force modernization aircraft systems.
- 271 Continue to provide test management capability for PEO Aviation Program/Project/Product Managers.

Total 4062

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605606A - AIRCRAFT CERTIFICATION**

PROJECT  
**092**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	3171	3582	3714
Appropriated Value	3200	3582	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-30	0
b. SBIR / STTR	-31	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-29	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	348
Current Budget Submit (FY 2003 PB)	3140	3552	4062

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605702A - Meteorological Support to RDT&amp;E Activities</b>					PROJECT <b>128</b>			
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
128 MET SPT TO DTC ACTIVITY	6719	6833	7310	10069	10277	9565	9858	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** All functions and resources in this Program Element (PE) are managed by the U.S. Army Developmental Test Command, a subordinate command of the U.S. Army Test and Evaluation Command (ATEC). Meteorological Support to Research, Development, Testing and Evaluation (RDT&E) Activities provides standard and specialized weather forecasts and data for test reports to satisfy Army/DoD RDT&E test requirements for modern weaponry, i.e., (1) unique atmospheric analysis and sampling to include atmospheric transmittance, extinction, optical scintillation, infrared temperature, aerosol/smoke cloud dispersion characteristics, ballistic meteorological measurements, snow characterization and crystal structure; (2) test event forecasting to include prediction of sound propagation for ballistic firing tests, specialized prediction of light levels and target to background measurements and predictions for electro-optical testing and ballistic meteorology; (3) advisory and warning products such as go-no-go recommendations for ballistic and atmospheric probe missiles, smoke obscurant tests, hazard predictions for chemical agent munitions disposal, simulated nuclear blasts, and weather warnings for test range safety. Provides technical support to Army Program Executive Officers (PEOs), Project Managers (PMs) and the Army test ranges and sites at: White Sands Missile Range (WSMR), NM (including the Electronic Proving Ground (EPG), Fort Huachuca, AZ); Dugway Proving Ground (DPG), UT; Aberdeen Test Center (ATC), Aberdeen Proving Ground, MD; Redstone Technical Test Center (RTTC), Redstone Arsenal, AL; Yuma Proving Ground (YPG), AZ (including the Cold Regions Test Center (CRTC), Fort Greely, AK and the Tropical Regions Test Center, HI); Fort Belvoir, VA and Fort A.P. Hill, VA. Develops methodologies and acquires instrumentation and systems that allow meteorological teams to support current and future Army/DoD RDTE requirements. This PE finances indirect meteorological support operating costs not billable to customers and replacement/upgrade of meteorological instrumentation. Direct costs for meteorological support services are not funded by this PE, but are borne by the customer (i.e. materiel/weapons developers and project/product managers) in accordance with DoD Directive 7000.14R, October 1999. This program is integral to the accomplishment of the Army's developmental test and evaluation mission and its support of the Army Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 1546 Provided indirect costs for generating weather forecasts, severe weather warnings/advisories, staff meteorological services, and atmospheric measurements in support of Army/DoD tests and projects at nine Army sites/test ranges and alternative test sites as required.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605702A - Meteorological Support to RDT&amp;E Activities</b>	PROJECT <b>128</b>
--------------------------------------------------	-----------------------------------------------------------------------------------------	-----------------------

**FY 2001 Accomplishments: (Continued)**

- 4139 Modernized operational equipment to meet customer requirements for meteorological support. Sustained the Mobile Operational Meteorological System (MOMSS) and atmospheric profilers. Completed integration of meteorological instrumentation into the Major Range and Test Facility Base (MRTFB) Four Dimensional Weather System (4DWX) at DPG. Developed and installed the fifth generation mesoscale meteorological code (MM5) as the basic component of the real time four dimensional data assimilation package at DPG and YPG. Completed the MRTFB 4DWX installation at YPG and provided system sustainment. Installed the National Oceanic and Atmospheric Administration (NOAA) Port/4DWX "Light" (reduced capability) at CRTC. Evaluated the solid state Sonic Detection and Ranging System as replacement for meteorological towers.
  - 1034 Provided program management for meteorological support to the research, development, test and evaluation community and technical review/assistance to ranges and meteorological teams. Provided weather forecast support systems/data - improved/modified/increased data sets for environmental modules to virtual testing.
- Total 6719

**FY 2002 Planned Program**

- 1449 Provide indirect costs for generating weather forecasts, severe weather warnings/advisories, staff meteorological services, and atmospheric measurements in support of Army/DoD tests and projects at nine Army sites/test ranges and alternative test sites, as required.
  - 4309 Modernize operational equipment to meet customer requirements for meteorological support. Evaluate the Coherent Laser Light Detection and Ranging (LIDAR) at WSMR. Develop and install, using MM5 as the basic component, a real time four dimensional data assimilation package at WSMR and ATC. Upgrade and sustain the MOMSS and atmospheric sounders/profilers to increase automation, fidelity and reliability. Begin integration of meteorological instrumentation into the MRTFB 4DWX at WSMR and YPG. Install the NOAA Port/4DWX "Light" at EPG. Begin development of the Globally Relocatable 4DWX at DPG.
  - 1075 Provide program management for meteorological support to the research, development, test and evaluation community and technical review/assistance to ranges and meteorological teams. Provide weather forecast support systems/data - improve/modify/increase data sets for environmental modules to virtual testing.
- Total 6833



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605702A - Meteorological Support to RDT&E  
Activities**

PROJECT  
**128**

**FY 2003 Planned Program**

- 1507 Provide indirect costs for generating weather forecasts, severe weather warnings/advisories, staff meteorological services, and atmospheric measurements in support of Army/DoD tests and projects at nine Army sites/test ranges and alternative test sites as required.
- 4685 Modernize operational equipment to meet customer requirements for meteorological support. Lease/purchase the LIDAR at WSMR. Develop and install, using MM5 as the basic component, a real time four dimensional data assimilation package at RTTC. Upgrade and sustain the MOMSS and atmospheric sounders/profilers to increase automation, fidelity and reliability. Begin integration of the meteorological instrumentation into the MRTFB 4DWX at RTTC. Continue/complete development of the Globally Relocatable 4DWX at DPG.
- 1118 Provide program management for meteorological support to the research, development, test and evaluation community and technical review/assistance to ranges and meteorological teams. Provide weather forecast support systems/data - improve/modify/increase data sets for environmental modules to virtual testing.

Total 7310

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	6864	6890	7041
Appropriated Value	6927	6890	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-57	0
b. SBIR / STTR	-156	0	0
c. Omnibus or Other Above Threshold Reduction	0	0	0
d. Below Threshold Reprogramming	11	0	0
e. Rescissions	-63	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	269
Current Budget Submit (FY 2003 PB)	6719	6833	7310

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

**February 2002**

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605706A - MATERIEL SYSTEMS ANALYSIS</b>						PROJECT <b>541</b>		
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
541     MATERIEL SYS ANALYSIS	8683	8811	10189	10402	11160	10902	11235	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program element funds Department of the Army civilians at the Army Materiel Systems Analysis Activity (AMSAA) to conduct its mission of materiel systems analysis. AMSAA is the Army's center for item/system level performance analysis and certified data. In accomplishing its materiel systems analysis mission, AMSAA analyzes the performance and combat effectiveness of conceptual, developmental, and existing systems. Unique models and methodologies have been developed to predict critical performance variables, such as, weapon accuracy, target acquisition, rate of fire, probability of inflicting catastrophic damage, and system reliability. AMSAA is responsible for the generation of these performance and effectiveness measures and for ensuring their standard use across major Army and Joint studies. AMSAA conducts and supports various systems analyses, such as: analyses of alternatives (AoAs), system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, and requirements analyses. These analyses are used by Army and Department of Defense (DoD) leadership in making acquisition, procurement, and logistics decisions in order to provide quality equipment and procedures to the soldiers. AMSAA's modeling and simulation (M&S) capabilities support the development, linkage, and accreditation of live, virtual, and constructive simulations, and provide unique tools that support systems analysis of individual systems and the combined-arms environment. AMSAA is the Army's executive agent for the verification, validation, and accreditation (VV&A) of item level performance models. In this role, AMSAA assists model developers with the development and execution of verification and validation (V&V) plans to ensure new models and simulations faithfully represent actual systems. AMSAA also develops reliability, availability, and maintainability methodologies for use across the Army. As the Army's center for materiel systems analysis, AMSAA provides the technical capability to support Army and DoD decision-makers throughout the entire materiel acquisition process in responding to analytic requirements across the full spectrum of materiel.

It is critical that the Army have access to AMSAA's integrated analytical capability that provides timely, reliable, and high quality analysis on which Army leadership can base the complex decisions required to shape the future Army. AMSAA has developed an integrated set of skills and tools focused on its core competencies to be responsive to the breadth and depth of systems analysis requirements critical in supporting Army Transformation decisions.

The capabilities of AMSAA in the RDT&E area are critical to the success of the Transformation Campaign Plan (Legacy to Objective Force transition path) specifically:

- Line of Operation 2: Modernization and Re-capitalization
- Line of Operation 8: Operational Force Design
- Line of Operation 9: Deploying and Sustaining
- Line of Operation 10: Develop and Acquire Advanced Technology

This PE/Project funds the salaries of civilian employees assigned to the materiel systems analysis mission.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support**

**0605706A - MATERIEL SYSTEMS ANALYSIS**

**541**

## FY 2001 Accomplishments:

- 8683 Developed and certified system performance and effectiveness data for U.S. and foreign systems used to support Army and Joint analyses of alternatives (AoAs), force structure studies, and theater level studies. Numerous requests were completed supporting specific AoAs (e.g., Crusader, Joint Common Missile), transformation analyses (e.g., Future Combat System baseline scenarios), and other theater level studies. Examples of programs where decisions were influenced: Future Combat System (FCS), LAV III, Hellfire, Crusader, Comanche, and landmines. Analyzed the performance and combat effectiveness of materiel systems and tech base programs in support of HQDA, AMC, PEOs/ PMs and R&D Centers. Included were conduct of and support to: AoAs, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion, and technology base analyses. Examples of programs where decisions were influenced: FCS, Interim Armored Vehicles (IAV), Joint Common Missile, Force XXI Battle Command Brigade and Below (FBCB2), Crusader, Comanche, Digitization Brigade and Below (DB2), soldier survivability, and multiple programs where reliability physics of failure analyses were applied. Developed, modified, and maintained weapon system level methodologies, models, and simulations used in the conduct of systems analysis. Examples of efforts include: aviation performance and effectiveness modeling, target acquisition methodology improvements, integrated casualty estimation methodology, dismounted infantry modeling, and active protection systems/counter active protection systems modeling. Performed verification and validation of item level performance models and methodologies. Funding supported DA civilians.

Total 8683

## FY 2002 Planned Program

- 8811 Develop and certify system performance data for U.S. and foreign systems to be used to support Army and Joint analyses of alternatives (AoAs), force structure studies, and theater level studies. Key decisions relative to major programs, such as, FCS, Comanche, and Crusader will be supported. Analyze the performance and combat effectiveness of materiel systems and tech base programs in support of HQDA, AMC, PEOs/ PMs and R&D Centers. Included are conduct of and support to: AoAs, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion, and technology base analyses. Examples of programs/initiatives that will be supported with analyses include: FCS, IAV, Objective Individual Combat Weapon (OICW), Unmanned Aerial Vehicles (UAV), and FBCB2. Develop, modify, and maintain item level methodologies, models, and simulations to be used in the conduct of systems analysis. Examples of planned efforts include individual combat evaluation model, synthetic aperture radar methodology, vehicle performance methodology, reliability methodology improvements, and non-lethal weapons methodology. Perform verification and validation of item level performance models and methodologies. Funding will support DA civilians.

Total 8811

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605706A - MATERIEL SYSTEMS ANALYSIS**

PROJECT  
**541**

**FY 2003 Planned Program**

- 10189 Develop and certify system performance data for U.S. and foreign systems to be used to support Army and Joint AoAs, force structure studies, and theater level studies. Key decisions relative to major programs will be supported. Analyze the performance and combat effectiveness of materiel systems and tech base programs in support of HQDA, AMC, PEOs/ PMs and R&D Centers. Included are conduct of and support to: AoAs, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion, and technology base analyses. A few examples of planned programs/initiatives to be supported with critical analyses include: Future Combat System (FCS), Army Tactical Missile System (ATACMS), Digitization, reliability physics of failure analyses of various weapon systems, PATRIOT, and Unmanned Aerial Vehicles (UAV). Develop, modify, and maintain weapon system level methodologies, models, and simulations to be used in the conduct of systems analysis. A few examples of planned efforts include: modeling of military operations in urban terrain (MOUT), search and target acquisition methodology improvements, dismounted infantry modeling, and physics of failure modeling improvements. Funding will support Department of Army civilians.

Total 10189

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	8657	8884	9128
Appropriated Value	8737	8884	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-73	0
b. SBIR / STTR	-59	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	85	0	0
e. Rescissions	-80	0	0
Adjustment to support Army Transformation	0	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	1061
Current Budget Submit (FY 2003 PB)	8683	8811	10189

Change Summary Explanation: FY 2003: Funding increase (+1032) implements legislative change directing each agency to pay the full Government share

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605706A - MATERIEL SYSTEMS ANALYSIS**

PROJECT  
**541**

of the accruing retirement costs of current Civil Service Retirement System (CSRS) employees and the accruing health care costs of all future Federal retirees.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>		PE NUMBER AND TITLE <b>0605709A - EXPLOITATION OF FOREIGN ITEMS</b>						PROJECT <b>C28</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
C28 ACQ/EXPLOIT THREAT ITEMS (TIARA)	3549	3495	3490	3621	5559	5663	5763	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This is a continuing project for acquisition and exploitation of foreign materiel constituting potential advanced technology threats to U.S. systems. The primary aim of this project is to maximize the efficiency of research and development for force and materiel development by reducing the uncertainties concerning these threats. The project also answers general scientific and technical intelligence requirements, aids in the development of countermeasures to threat materiel and threat technology, and provides materiel for realistic testing and training. Acquisitions and exploitations are executed according to an Army Foreign Materiel Review Board and with the approval of the Army Deputy Chief of Staff for Intelligence (DCSINT). This activity supports the Legacy to Objective transition path of the Transformation Campaign Plan.

**FY 2001 Accomplishments:**

- 1100 Acquired threat systems identified and prioritized in the FY 2001 Army Foreign Materiel Program (FMP) Five Year Plan.
- 2449 Initiated, continued, or completed exploitation projects on ground systems of Army interest identified in the FY 2001 Army FMP Exploitation Program.

Total 3549

**FY 2002 Planned Program**

- 1187 Acquire threat systems identified and prioritized in the FY 2002 Army Foreign Materiel Program (FMP) Five Year Plan.
- 2308 Initiate, continue, or complete exploitation projects on ground systems of Army interest identified in the FY 2002 Army FMP Exploitation Program.

Total 3495

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605709A - EXPLOITATION OF FOREIGN ITEMS**      PROJECT  
**C28**

**FY 2003 Planned Program**

- 1181 Acquire threat systems identified and prioritized in the FY 2003 Army Foreign Materiel Program (FMP) Five Year Plan.
  - 2309 Initiate, continue, or complete exploitation projects on ground systems of Army interest identified in the FY 2003 Army FMP Exploitation Program.
- Total 3490

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	3549	3525	3499
Appropriated Value	3582	3525	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-30	0
b. SBIR / STTR	0	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-33	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-9
Current Budget Submit (FY 2003 PB)	3549	3495	3490

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605712A - Support of Operational Testing**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	68382	90790	99375	99709	102507	131581	134560	Continuing	Continuing
001 ATEC IOTE	18500	36319	30269	31573	32839	62570	63681	Continuing	Continuing
987 ATEC INSTRUMENTATION MODERNIZATION & DEVELOPMENT	5938	7477	0	0	0	0	0	0	44693
V02 ATEC ACTIVITIES	43944	46994	69106	68136	69668	69011	70879	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The US Army Test and Evaluation Command (ATEC) consists of three subordinate commands: the Army Evaluation Center (AEC), the Operational Test Command (OTC), and the Developmental Test Command (DTC). This program element finances the operational test and evaluation of developmental materiel systems to include support to the Army Transformation. Project 001 provides for direct operational testing and evaluation on major and non-major materiel systems (ACAT II-IV), including Multi-Service and Joint tests. Excludes funding for Acquisition Category I (ACAT I) major weapons with an Army Program Manager and ACAT IA, Automated Information Systems, which have funding programmed within their own developmental PEs. Project 987 provides for development and acquisition of non-major and sustaining instrumentation necessary to attain and maintain the data collection and analysis capability to conduct credible and robust operational tests as demanded by the DoD and Congress. It provides for replacement and improvements of existing obsolete inventory and for the development of new technologies to keep abreast of new weapons advancements. Project V02 provides for the recurring costs of operating the test activities of the U.S. Army Operational Test Command and similar support across the Command.



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605712A - Support of Operational Testing**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	68149	89047	86953
Appropriated Value	68779	91547	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-757	0
b. SBIR / STTR	-1059	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	1291	0	0
e. Rescissions	-629	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	12422
Current Budget Submit (FY 2003 PB )	68382	90790	99375

Change Summary Explanation: Funding: FY 2003 - Funds realigned in support of continued testing and evaluation (+15841). Funds realigned from project 987 to 0605602A, Army Technical Test Instrumentation and Targets, in order to provide greater visibility of the development of operational testing instrumentation and modeling and simulation efforts (-8279). Funding increase (+4860) implements legislative change directing each agency to pay the full Government share of the accruing retirement costs of current Civil Service Retirement System (CSRS) employees and the accruing health care costs of all future Federal retirees.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>				PE NUMBER AND TITLE <b>0605712A - Support of Operational Testing</b>				PROJECT <b>001</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
001 ATEC IOTE	18500	36319	30269	31573	32839	62570	63681	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project finances the direct costs of planning and conducting operational testing and evaluations on major and non-major materiel systems (ACAT II-IV). This project also includes Multi-Service systems (ACAT II-IV and ACAT I without an Army Program Manager) and Joint Tests (JT). It funds those costs directly attributable to conducting Early User Tests and Evaluations (EUTE), Limited User Tests and Evaluations (LUTE), or Initial Operational Tests and Evaluations (IOTE). Operational testing is conducted using typical user troops trained to operate the system. Test conditions are as close as possible to actual combat or operating circumstances. ATEC provides Army leadership with an independent test and evaluation of effectiveness, suitability, and survivability of the system.

**FY 2001 Accomplishments:**

Tests include: Suite of Integrated Radio Frequency Countermeasures (SIRFC), Joint Warfighter (JWF), Battlefield Combat Identification System (BCIS), Advanced Field Artillery Tactical Data System (AFATDS 99) - LUTE, Combat Identification for the Dismounted Soldier (CIDDS) - IOTE, Upgraded M270A1 Multiple Launch Rocket System, and Tactical Unmanned Aerial Vehicle (TUAV).

- 6264 Intelligence and Electronic Warfare operational testing and evaluation.
- 3636 Fire Support operational testing and evaluation.
- 3031 Close Combat operational testing and evaluation.
- 2714 Joint Tests operational testing and evaluation.
- 1815 Aviation operational testing and evaluation.
- 1040 Engineer/combat support operational testing and evaluation.

Total 18500

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605712A - Support of Operational Testing**

PROJECT

**001****FY 2002 Planned Program**

- 3263 Fire Support operational testing and evaluation.
- 1877 Air Defense Artillery operational testing and evaluation.
- 3478 Aviation operational testing and evaluation.
- 11133 Intelligence and Electronic Warfare operational testing and evaluation.
- 7773 Joint Tests operational testing and evaluation.
- 7820 Engineer/combat support operational testing.
- 975 Close Combat operational testing and evaluation.

Total 36319

**FY 2003 Planned Program**

- 2172 Close Combat operational testing and evaluation.
- 11066 Fire Support operational testing and evaluation.
- 3836 Intelligence and Electronic Warfare operational testing and evaluation.
- 6740 Command, Control, Communications and Computer operational testing and evaluation.
- 1139 Joint Test operational testing and evaluation.
- 895 Engineer/combat support operational testing and evaluation.
- 3211 Air Defense Artillery operational testing and evaluation.
- 579 Aviation operational testing and evaluation.
- 631 Airborne and Special Operations operational testing and evaluation.

Total 30269

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>				<b>PE NUMBER AND TITLE</b> <b>0605712A - Support of Operational Testing</b>				<b>PROJECT</b> <b>V02</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
V02 ATEC ACTIVITIES	43944	46994	69106	68136	69668	69011	70879	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project finances base costs associated with operational testing, including civilian pay, support contracts, temporary duty, supplies and equipment for subordinate elements of the US Army Test and Evaluation Command (ATEC). This project funds the Operational Test Command's Airborne and Special Operations Test Directorate, Fort Bragg, NC; Air Defense Test Directorate, Fort Bliss, TX; Fire Support Test Directorate, Fort Sill, OK; and the Intelligence and Electronic Warfare Test Directorate, Fort Huachuca, AZ, and test and support directorates located at Fort Hood, TX (Aviation; Close Combat; Engineer/Combat Support; Command, Control, Communications and Computers; Advanced Concepts and Test and Evaluation Support Activity). The primary mission of these test directorates is to conduct operational testing of developmental materiel, Initial Operational Test and Evaluation (IOTE), Follow-on Test and Evaluations (FOTE), Force Development Test and Experimentation (FDTE), and Army Warfighting Experiments (AWE). This project also finances requirements for various Test and Evaluation Liaison Offices located at Fort Benning, Fort Knox, Fort Leonard Wood, Fort Lee, Fort Gordon, Fort Rucker and the Operational Test Command liaison office for the Initial Brigade Combat Team (IBCT) at Fort Lewis. In addition, this project funds ATEC Threat Support Activity (ATSA) located at Fort Bliss, TX.

Program increase starting in FY 2003 is due to transfer of personnel and dollars with mission from Operations and Maintenance, Army to RDTE.

**FY 2001 Accomplishments:**

- 27045 Operational costs including: civilian pay, support contracts, temporary duty, supplies and equipment for subordinate elements of the Operational Test Command of the Army Test and Evaluation Command. A total of 313 civilian authorizations are supported.
- 16899 Other operational costs including: civilian pay, support contracts, temporary duty, supplies and equipment for the Liaison Officers, ATEC Threat Support Activity (ATSA) and subordinate commands. A total of 23 civilian authorizations are supported.

Total 43944

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605712A - Support of Operational Testing**

PROJECT

**V02****FY 2002 Planned Program**

- 31947 Operational costs including: civilian pay, support contracts, temporary duty, supplies and equipment for subordinate elements of the Operational Test Command. A total of 316 civilian authorizations are supported.
- 15047 Other operational costs including: civilian pay, support contracts, temporary duty, supplies and equipment for the Liaison Officers, ATEC Threat Support Activity (ATSA) and subordinate commands. A total of 20 civilian authorizations are supported.

Total 46994

**FY 2003 Planned Program**

- 45621 Operational costs including: civilian pay, support contracts, temporary duty, supplies and equipment for subordinate elements of the Operational Test Command. A total of 416 civilian authorizations are supported.
- 23485 Other operational costs including: civilian pay, support contracts, temporary duty, supplies and equipment for the Liaison Officers, ATEC Threat Support Activity (ATSA) and subordinate commands. A total of 43 civilian authorizations are supported.

Total 69106

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605716A - Army Evaluation Center</b>						PROJECT <b>302</b>		
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
302 ARMY EVALUATION CENTER	25855	44611	43950	49052	50119	49770	60321	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Project 302 funds the Army Evaluation Center (AEC), which falls under the Army Test and Evaluation Command (ATEC), mission of evaluation and test design. AEC is the Army's independent evaluator for both technical and operational tests of developmental systems for all Army acquisition programs. AEC provides integrated technical and operational evaluations, and life-cycle Continuous Evaluation (CE) of assigned Major Defense Acquisition Programs (MDAP), Major Automated Information Systems, and In-Process Review (IPR) programs for major milestone decisions, materiel changes, and materiel releases in support of the Army Acquisition Executive and force development. AEC develops the evaluation strategy, designs technical and operational tests, and evaluates the test results to address the effectiveness, suitability, and survivability factors pertinent to the decision process, such as: Critical Operational Issues and Criteria (COIC), system performance, soldier survivability, performance in countermeasures, system survivability, reliability, supportability, etc. AEC has the lead in planning and execution of Army Live Fire Tests and Continuous Evaluations through its evaluation and test design responsibilities. This project funds the salaries of civilian employees assigned to the evaluation and test design missions and associated costs including temporary duty, support contracts, supplies and equipment. This project does not finance test facility operations, test instrumentation or test equipment.

**FY 2001 Accomplishments:**

- 25855 Provided integrated technical and operational evaluations and continuous evaluation of assigned MDAPs, major automated information systems, and IPR programs for major milestone decisions, materiel changes, and materiel releases in support of the Army Acquisition Executive and force development. Developed the evaluation strategy, designed technical and operational tests, and evaluated the test results to address the effectiveness, suitability, and survivability factors pertinent to the decision process on systems such as the Brigade Combat Team (BCT), Comanche, UH-60M Blackhawk Helicopter, Division Capstone Exercise (DCX), Advanced Field Artillery Tactical Data System (AFATDS), Guardrail, Tactical Unmanned Aerial Vehicle (TUAV), Prophet, Bradley Fire Support Team (FIST), Crusader, C-17, Transportation Coordinator's Automated Information for Movement System II (TCAIMS), ATACMS Block II/BAT, the Armored Security Vehicle, Warfighter Simulation (WARSIM), Firefinder Q-47, and the Interim Armored Vehicle (IAV). As the Army lead for Live Fire Test and Evaluation, planned and executed the Army Live Fire Test and Evaluation program for developmental systems such as the Brigade Combat Team (BCT), the M1A2 SEP, Crew Protection Kits, Objective Individual Combat Weapon (OICW), Objective Crew Served Weapon (OCSW), Fire Control System (FCS) and the Line of Sight Anti-Tank (LOSAT). Prepared integrated System Evaluation Plans and conducted integrated technical and operational evaluations for all Army weapon systems. Includes costs for 171 civilian authorizations.

Total 25855

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support**

**0605716A - Army Evaluation Center**

**302**

## FY 2002 Planned Program

- 44611 Provide integrated technical and operational evaluations and continuous evaluation of assigned MDAPs, and IPR programs for major milestones decisions, materiel changes, and materiel releases in support of the Army Acquisition Executive and force development. Develop the evaluation strategy, design technical and operational test, and evaluate the test results to address the effectiveness, suitability, and survivability factors pertinent to the decision process on systems such as the Crusader, Comanche, Tactical Unmanned Aerial Vehicle (TUAV), Brigade Combat Team (BCT), ASAS Block III LUTE, Combat Survivor Evader Locator (CSEL), STARSTREAK, Anti-Personnel Landmine Alternative (APLA), C-130J Airdrop Qualification, C-17 Aircraft, CBA-PLUS, Countermine Capability Set (CMCS) Group B-1 Hercules, High Mobility Multipurpose Wheeled Vehicle (HMMWV A4), SENTINEL, Joint Tactical Ground Station Multi-Mission Mobile Processor (JTAGS/M3P), Helicopter Launched Fire and Forget Missile System (HELLFIRE), Suite of Integrated Infrared Countermeasures (SIIRCM), Suite of Integrated Radio Frequency Countermeasures (SIRFC), and the Firefinder Q-47. As the Army lead for Live Fire Test and Evaluation, plan and execute the Army Live Fire Test and Evaluation program for developmental systems such as the Crusader, MH60K Special Operations Aircraft (SOA). Prepare integrated System Evaluation Plans and conduct integrated technical and operational evaluations for all Army weapons systems. Includes cost for 171 authorizations.

Total 44611

## FY 2003 Planned Program

- 43950 Provide integrated technical and operational evaluations and continuous evaluation of assigned MDAPs, major automated information systems, and IPR programs for major milestone decisions, materiel changes, and materiel releases in support of the Army Acquisition Executive and force development. Develop the evaluation strategy, design technical and operational tests, and evaluate the test results to address the effectiveness, suitability, and survivability factors pertinent to the decision process, such as Crusader, Comanche, Common Ground System (CGS), Tactical Unmanned Aerial Vehicle (TUAV), Blackhawk Helicopter (UH-60M), Combat Survivor Evader Locator (CSEL), Anti-Personnel Landmine Alternative (APLA), NSD-A, Countermine Capability Set (CMCS) Group B-2, Family of Medium Tactical Vehicles (FMTV), Hercules, High Mobility Multipurpose Wheeled Vehicle (HMMWV A4), HMMWV Mounted Advanced Medium Range Air to Air Missile system (HUMRAAM), Helicopter Launched Fire and Forget Missile System (HELLFIRE), Aviation Combined Arms Tactical Trainer (AVCATT-A), Suite of Integrated infrared Countermeasures (SIIRCM), Suite of Integrated Radio Frequency Countermeasures (SIRFC). As the Army lead for Live Fire Test and Evaluation, plan and execute the Army Live Fire Test and Evaluation program for developmental systems such as the Comanche and HELLFIRE. Prepare integrated System Evaluation Plans and conduct integrated technical and operational evaluations for all Army weapon systems. Includes costs for 171 civilian authorizations.

Total 43950

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605716A - Army Evaluation Center**

**PROJECT**  
**302**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	26095	31365	32073
Appropriated Value	26337	44965	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-354	0
b. SBIR / STTR	-400	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	159	0	0
e. Rescissions	-241	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	11877
Current Budget Submit (FY 2003 PB)	25855	44611	43950

Change Summary Explanation: Funding - FY 2003: Funds realigned from PE 0605712A to this PE to support transfer of personnel (+3593). Received funds to support continuing evaluation (+7572). Funds were also realigned out of this PE to PE 0604256A in support of upgrades to the XM11S Simulator (-1500). Funding increase (+2122) implements legislative change directing each agency to pay the full Government share of the accruing retirement costs of current Civil Service Retirement System (CSRS) employees and the accruing health care costs of all future Federal retirees.



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605718A - Simulation &amp; Modeling for Acq, Rqts, &amp; Tng (SMART)</b>						<b>PROJECT</b> <b>S01</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
S01	INTEGRATION AND EVALUATION CENTER (IEC) SUSTAINMEN	0	0	2694	2685	2778	2872	2962	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Simulation and Modeling for Acquisition, Requirements and Training (SMART) Program will develop essential operational tools and software applications to support ongoing Advanced Concepts Technology Demonstrations (ACTDs) and maintain the current suite of modeling/simulation programs resident in the Joint Precision Strike Demonstration's (JPSD) Integration and Evaluation Center (IEC). The IEC provides critical support in: (1) developing, testing and evaluating Joint Command, Control, Communication and Computer Intelligence, Surveillance and Reconnaissance (C4ISR) operational concepts, tactics, techniques and procedures (TTPs), enabling technologies and systems; (2) developing and evaluating Joint/Services sensor-to-shooter and precision engagement C4ISR architectures; (3) providing a robust/current modeling and simulation environment to support the Army's critical SMART Program and Simulation Based Acquisition (SBA) activities; (4) Joint/Services development of Joint Warfighting Concepts and operational TTPs; and (5) development of visualization tools and applications to significantly enhance the CINCs and/or JTF Commander's situational awareness of their battlespace. The IEC is a critical enabling capability in building and testing software applications and operational concepts for JPSD's four current ACTDs: Theater Precision Strike Operations (TPSO) – USFK, Joint Continuous Strike Environment (JCSE) – EUCOM, and Joint Intelligence Surveillance Reconnaissance (JISR) – CENTCOM; and one new proposed ACTD, Theater Effects Based Operations (TEBO) – CINCUNC. The IEC has also proven to be essential for conducting SMART/SBA activities in support of the three critical Army acquisition programs: the Objective Force, Future Combat Systems, and Aerial Common Sensor. The IEC's virtual environment allows the Army to test and evaluate concepts and technologies before making costly, irreversible procurement decisions. The IEC is a unique combination of real tactical and operational systems with constructive and virtual simulations/simulators and state of the art high-fidelity models to provide a Joint Virtual Battlefield testbed which can be used to: (1) design, conduct, collect data and evaluate system-of-systems experiments and demonstrations; (2) support and stimulate geographically dispersed field exercises and operational tests; and (3) support and evaluate the development of joint operational concepts and emerging technologies before integrating them into the CINCs go-to-war C4ISR architecture. This later capability has allowed JPSD to quickly and safely integrate proven concepts and technologies into not only one CINC's architecture, but multi CINCs, thereby enhancing all their capabilities simultaneously and significantly improving joint interoperability. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan and Project Reliance. The program element, because of its joint nature, does not duplicate, but instead significantly improves and supports ongoing efforts within the Military Departments. The IEC, located within the Army's Topographic Engineering Center (TEC), has been built and maintained by the Director, Joint Precision Strike Demonstration Project Office (JPSD-PO) at Fort Belvoir, Virginia. JPSD-PO is an OSD/Army chartered program under the Program Executive Officer for Intelligence, Electronic Warfare, and Sensors (PEO-IEW&S), Fort Monmouth, NJ.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

February 2002

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)**

PROJECT

**S01****FY 2001 Accomplishments:**

This Program starts in FY 2003.

**FY 2002 Planned Program**

This Program starts in FY 2003

**FY 2003 Planned Program**

- 2694 - Provide enhanced Joint user/developer testbed for rapid prototyping of new systems in C4I and weapon(s) evaluations.
- Support execution of four advanced concept technology demonstrations (TPSO; JISR; JCSE; and TEBO) and two SMART/SBA acquisition programs (FCS and ACS).
- Support planned transition of Theater Precision Strike Operations (TPSO) ACTD in training and simulation support for exercises.
- Provide stimulus in support of training for the Joint Intelligence Surveillance and Reconnaissance (JISR) ACTD and web-based development.

Total 2694

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)**

PROJECT  
**S01**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY 2002 PB)	0	0	0
Appropriated Value	0	0	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	0	0
b. SBIR/STTR	0	0	0
c. Omnibus or Other Above Threshold Reduction	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	0	0	0
Adjustments to Budget Years Since FY 2002 PB	0	0	2694
Current Budget Submit (FY 2003 PB)	0	0	2694

Change Summary Explanation: Funding: FY 2003 - Funds realigned to support the Simulation and Modeling for Acquisition, Requirements and Training (SMART) Program.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605801A - Programwide Activities**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	67449	59584	73058	99150	91010	97330	126365	Continuing	Continuing
F06 OBJECTIVE FORCE TASK FORCE	0	0	9976	9945	9921	9905	9876	Continuing	Continuing
M02 MED CMD SPT (NON-AMHA)	7681	7571	12990	13435	13953	14440	41018	Continuing	Continuing
M15 ARI MGMT/ADM ACT	1993	2003	2332	2457	2665	2663	2770	Continuing	Continuing
M16 STANDARDIZATION GROUPS	3891	3468	3780	4347	4457	4555	4666	0	50978
M42 ARDEC CMD/CTR SUPPORT	5986	5943	7259	6771	6958	6689	6912	Continuing	Continuing
M44 CECOM CMD/CTR SPT	4060	3885	3984	3942	3867	4488	4694	Continuing	Continuing
M45 ARL CMD/CTR SUPPORT	4995	4933	3670	0	0	0	0	0	48421
M46 AMCOM CMD/CTR SPT	5213	5177	6640	6834	7091	6850	7071	Continuing	Continuing
M47 TACOM CMD/CTR SPT	3189	3174	3586	3273	3246	3161	3260	Continuing	Continuing
M53 DEVELOPMENTAL TEST COMMAND/CTR SPT	9714	9468	11159	12439	12864	12689	13077	Continuing	Continuing
M55 EDGEWOOD CHEMICAL BIOLOGICAL CENTER (ECBC)	3056	3054	4376	4545	4714	4603	4757	Continuing	Continuing
M58 SSCOM CMD/CTR SPT	1860	1848	2019	1991	2025	2543	2605	Continuing	Continuing
M75 FED WORKFORCE RESTRUCT	14700	7926	162	28000	18052	23519	24410	0	154841
M76 ARMAMENT GROUP SUPPORT	1111	1134	1125	1171	1197	1225	1249	0	10433

**A. Mission Description and Budget Item Justification:** This program funds the continued operation of non-Army Management Headquarters Activities (AMHA) management and administrative functions at U.S. Army Research, Development and Standardization Groups overseas, Army Research, Development, Test, and Evaluation (RDTE) commands, centers and activities required to accomplish overall assigned general research and development missions and international research and development not directly related to specific research and development projects. Projects reflect a glide path in response to Army infrastructure drawdown initiatives. The Standardization Groups play an integral role in the U.S. Army efforts for international cooperative research, development and interoperability, and fulfill international memoranda of understanding requirements (especially the American, British, Canadian and Australian Armies Standardization Programs).

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605801A - Programwide Activities**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY 2002 PB)	60734	69096	71229
Appropriated Value	73811	60096	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-512	0
b. SBIR/STTR	-536	0	0
c. Omnibus or Other Above Threshold Reprogrammings	-5149	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-677	0	0
Adjustments to Budget Years Since FY 2002 PB	0	0	1829
Current Budget Submit (FY 2003 PB )	67449	59584	73058

Change Summary Explanation: Funding - FY 2003: Funding increase (+5711) implements legislative change directing each agency to pay the full Government share of the accruing retirement costs of current Civil Service Retirement System (CSRS) employees and the accruing health care costs of all future Federal retirees.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>				PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>				PROJECT <b>F06</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
F06    OBJECTIVE FORCE TASK FORCE	0	0	9976	9945	9921	9905	9876	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Objective Force Task Force (OFTF), chartered by the Secretary of the Army and Chief of Staff Army, serves as the single, overarching, integrating activity within the Department of the Army that provides the direction, means, and impetus for the Objective Force. The OFTF facilitates the accelerated fielding of the Objective Force by integrating and synchronizing war fighting capabilities and technologies and by providing assessments associated with the Doctrine, Training, Leader Development, Organization, Materiel, and Soldier (DTLMOS) process that focus Army Senior Leadership decision-making. It is further tasked to favorably influence multiple parts of the Army, OSD, JCS, Congress, and industry to ensure that the Army achieves Objective Force capabilities this decade.

**FY 2001 Accomplishments:**

OFTF was stood up under PE 0603005A as part of collaborative support by Army Defense Advanced Research Projects Agency (DARPA), FCS program and the FCS analysis function of the Objective Force Task Force.

**FY 2002 Planned Program**

Funding for the OFTF will continue under PE 0603005A/project 53G.

**FY 2003 Planned Program**

- 9976    Contract support for professional engineering support in the areas of Combined Systems, Resource and Force Development Integration plus Strategic Plans and Initiatives. Contractors will provide integration, coordination, assessments and management support, including technical approaches and trade-off analyses.

Total    9976

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>				<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>				<b>PROJECT</b> <b>M02</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M02 MED CMD SPT (NON-AMHA)	7681	7571	12990	13435	13953	14440	41018	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project provides continued operations of contracting and acquisition management and related administrative functions performed by the Army Medical Research Acquisition Activity (USAMRAA) in support of Army Medical Research and Materiel Command (USAMRMC) RDTE programs and its tenant organizations at Fort Detrick, Maryland, including medical materiel procurement contracts for the U.S. Army Medical Materiel Agency and the Office of the Surgeon General, Army. The project also provides funding for the headquarters activities at the USAMRMC, Fort Detrick, Maryland to: (1) develop medical RDTE program policy and guidance; (2) perform long range planning, programming and budgeting; (3) provide the management of resources; and (4) conduct program performance review and evaluation for the RDTE appropriation.

Funding increase starting in FY 2003 is due to the growth in personnel costs to include the implementation of a legislative change directing each agency to pay the full Government share of the accruing retirement costs of current Civil Service Retirement System (CSRS) employees and the accruing health care costs of all future Federal retirees.

**FY 2001 Accomplishments:**

- 7681 Continued to provide acquisition management functions in support of USAMRMC RDTE programs and its tenant organizations, Ft. Detrick, MD, including medical materiel procurement contracts and procurement of biological defense vaccines. Funded the operation of HQ, USAMRMC activities that administer the medical research, development, and acquisition program to sustain military technology superiority.
- Total 7681

**FY 2002 Planned Program**

- 7571 Continue to provide acquisition management functions in support of USAMRMC RDTE programs and its tenant organizations, Ft. Detrick, MD, including medical materiel procurement contracts and procurement of biological defense vaccines. Fund the operation of HQ, USAMRMC activities that administer the medical research, development, and acquisition program to sustain military technology superiority.
- Total 7571

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605801A - Programwide Activities**

PROJECT  
**M02**

## FY 2003 Planned Program

- 12990 Continue to provide acquisition management functions in support of USAMRMC RDTE programs and its tenant organizations, Ft. Detrick, MD, including medical materiel procurement contracts and procurement of biological defense vaccines. Fund the operation of HQ, USAMRMC activities that administer the medical research, development, and acquisition program to sustain military technology superiority.

Total 12990



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>				<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>				<b>PROJECT</b> <b>M15</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M15    ARI MGMT/ADM ACT	1993	2003	2332	2457	2665	2663	2770	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Supports the non-AMHA management and administrative functions at the Army Research Institute (ARI) to include the Army Research Institute for the Behavioral and Social Sciences, Alexandria, VA.

**FY 2001 Accomplishments:**

- 1993     Provided continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARI.

Total    1993

**FY 2002 Planned Program**

- 2003     Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARI.

Total    2003

**FY 2003 Planned Program**

- 2332     Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARI.

Total    2332

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>				PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>				PROJECT <b>M16</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M16    STANDARDIZATION GROUPS	3891	3468	3780	4347	4457	4555	4666	0	50978

**A. Mission Description and Budget Item Justification:** Project M16 supports six Standardization Groups (Australia, United Kingdom, Canada, France, Germany and the Far East) for personnel, travel and overhead costs, leases on buildings, and mandatory permanent change of station. The mission of the Standardization Groups is to represent the Army and serve as in-country/region focal point for all international armaments cooperation in their Areas (countries) of Responsibility to government agencies and defense industries. This includes identification of research, development, interoperability, standardization, (Multinational Force Compatibility) opportunities, and foreign non-developmental items (NDI) that support the Army Transformation by saving Army millions of dollars in development costs.

**FY 2001 Accomplishments:**

- 3891        Continued operation of six Standardization Groups in support of international research, development, interoperability, standardization, opportunities, and foreign NDI.

Total    3891

**FY 2002 Planned Program**

- 3468        Continue operation of six Standardization Groups in support of international research, development, interoperability, standardization, opportunities, and foreign NDI.

Total    3468

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**BUDGET ACTIVITY  
**6 - Management support**PE NUMBER AND TITLE  
**0605801A - Programwide Activities**PROJECT  
**M16****FY 2003 Planned Program**

- 3780 Continue operation of six Standardization Groups in support of international research, development, interoperability, standardization, opportunities, and foreign NDI.

Total 3780

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>				PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>				PROJECT <b>M42</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M42 ARDEC CMD/CTR SUPPORT	5986	5943	7259	6771	6958	6689	6912	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Supports the non-AMHA management and administrative functions at the U.S. Army Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, NJ.

**FY 2001 Accomplishments:**

- 5986 Provided continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARDEC.

Total 5986

**FY 2002 Planned Program**

- 5943 Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARDEC.

Total 5943

**FY 2003 Planned Program**

- 7259 Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARDEC.

Total 7259

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605801A - Programwide Activities**

PROJECT  
**M44**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M44 CECOM CMD/CTR SPT	4060	3885	3984	3942	3867	4488	4694	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Supports the non-AMHA management and administrative functions at the U.S. Army Communications-Electronics Command (CECOM), Ft. Monmouth, NJ.

**FY 2001 Accomplishments:**

- 4060 Provided continued operation of management and administrative functions at a level consistent with mission requirements and support needs at CECOM.

Total 4060

**FY 2002 Planned Program**

- 3885 Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at CECOM.

Total 3885

**FY 2003 Planned Program**

- 3984 Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at CECOM.

Total 3984

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>				<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>				<b>PROJECT</b> <b>M45</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M45    ARL CMD/CTR SUPPORT	4995	4933	3670	0	0	0	0	0	48421

**A. Mission Description and Budget Item Justification:** Supports the non-AMHA management and administrative functions at the U.S. Army Research Laboratory (ARL), Adelphi, MD.

**FY 2001 Accomplishments:**

- 4995     Provided continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARL.

Total   4995

**FY 2002 Planned Program**

- 4933     Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARL.

Total   4933

**FY 2003 Planned Program**

- 3670     Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARL.

Total   3670

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>				PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>				PROJECT <b>M46</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M46 AMCOM CMD/CTR SPT	5213	5177	6640	6834	7091	6850	7071	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Supports the non-AMHA management and administrative functions at the U.S. Army Aviation and Missile Command (AMCOM), Redstone Arsenal, AL.

**FY 2001 Accomplishments:**

- 5213 Provided continued operation of management and administrative functions at a level consistent with mission requirements and support needs at AMCOM.

Total 5213

**FY 2002 Planned Program**

- 5177 Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at AMCOM.

Total 5177

**FY 2003 Planned Program**

- 6640 Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at AMCOM.

Total 6640

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>				PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>				PROJECT <b>M47</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M47 TACOM CMD/CTR SPT	3189	3174	3586	3273	3246	3161	3260	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Supports the non-AMHA management and administrative functions at the U.S. Army Tank-Automotive Command (TACOM), Warren, MI.

**FY 2001 Accomplishments:**

- 3189 Provided continued operation of management and administrative functions at a level consistent with mission requirements and support needs at TACOM.

Total 3189

**FY 2002 Planned Program**

- 3174 Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at TACOM.

Total 3174

**FY 2003 Planned Program**

- 3586 Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at TACOM.

Total 3586



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>						<b>PROJECT</b> <b>M53</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M53	DEVELOPMENTAL TEST COMMAND/CTR SPT	9714	9468	11159	12439	12864	12689	13077	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Project M53 funds civilian labor and support costs for the management and administrative functions of the Headquarters, U.S. Army Developmental Test Command (DTC) located at Aberdeen Proving Ground, Maryland, and is required to support accomplishment of assigned developmental test and evaluation missions not directly related to specific test and evaluation projects. This project includes staff/management functions of resource management, installation management, and ADPE/information/technology support for command-wide databases in support of the developmental test mission with oversight and management responsibility of four Major Range and Test Facility Base installations/test centers: Aberdeen Test Center, Maryland; Dugway Proving Ground, Utah; Yuma Proving Ground, Arizona; and White Sands Missile Range, New Mexico (with responsibility for Electronic Proving Ground, Arizona), as well as for: Redstone Technical Test Center, Alabama; Aviation Technical Test Center, Alabama; Cold Regions Test Center, Alaska; and Tropic Regions Test Center, Hawaii. This is the operating budget for DTC HQ; which oversees the annual execution of over 1700 tests, 7500 workyears, and a \$830M program.

**FY 2001 Accomplishments:**

- 8373 Civilian labor and other support costs for DTC to manage and administer the assigned Army developmental test mission. HQ ATEC civilian labor and other support costs.
  - 995 Contract costs, including labor, required to manage and administer the assigned Army developmental test mission including responsibility for subordinate test and evaluation test centers and ranges.
  - 346 Materials and supplies.
- Total 9714

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605801A - Programwide Activities**

PROJECT

**M53****FY 2002 Planned Program**

- 8674 Civilian labor and other support costs for DTC to manage and administer the assigned Army developmental test mission.
- 694 Contract costs, including labor, required to manage and administer the assigned Army developmental test mission including responsibility for subordinate test and evaluation test centers and ranges.
- 100 Materials and supplies.

Total 9468

**FY 2003 Planned Program**

- 9876 Civilian labor and other support costs for DTC to manage and administer the assigned Army developmental test mission.
- 958 Contract costs, including labor, required to manage and administer the assigned Army developmental test mission including responsibility for subordinate test and evaluation test centers and ranges.
- 325 Materials and supplies.

Total 11159

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>				<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>				<b>PROJECT</b> <b>M55</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M55 EDGEWOOD CHEMICAL BIOLOGICAL CENTER (ECBC)		3056	3054	4376	4545	4714	4603	4757	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Supports the non-AMHA management and administrative functions at the U.S. Army Edgewood Chemical Biological Center (ECBC), Aberdeen Proving Ground, MD.

**FY 2001 Accomplishments:**

- 3056 Provided continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ECBC.

Total 3056

**FY 2002 Planned Program**

- 3054 Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ECBC.

Total 3054

**FY 2003 Planned Program**

- 4376 Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ECBC.

Total 4376

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>				<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>				<b>PROJECT</b> <b>M58</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M58    SSCOM CMD/CTR SPT	1860	1848	2019	1991	2025	2543	2605	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Supports the non-AMHA management and administrative functions at the Soldier and Biological Chemical Command (SBCCOM), Natick, MA.

**FY 2001 Accomplishments:**

- 1860     Provided continued operation of management and administrative functions at a level consistent with mission requirements and support needs at SBCCOM.

Total   1860

**FY 2002 Planned Program**

- 1848     Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at SBCCOM.

Total   1848

**FY 2003 Planned Program**

- 2019     Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at SBCCOM.

Total   2019

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>				PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>				PROJECT <b>M75</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M75 FED WORKFORCE RESTRUCT	14700	7926	162	28000	18052	23519	24410	0	154841

**A. Mission Description and Budget Item Justification:** Requirements were defined by the Federal Workforce Restructuring Act of 1994. Funds are to be used to offset the expenses of Voluntary Early Retirement Authority/Voluntary Separation Incentive Pay (VERA/VSIP), and the 15% tax on the final basic pay of each employee who retired under VERA/VSIP to be remitted to the Civil Service Retirement and Disability Fund (CSRDF). Distribution will be made in the year of execution.

**FY 2001 Accomplishments:**

- 14700 Fund the transition costs associated with workforce reductions (VERA/VSIP) and required OPM taxes.
- Total 14700

**FY 2002 Planned Program**

- 7926 Fund the transition costs associated with workforce reductions (VERA/VSIP) and required OPM taxes.
- Total 7926

**FY 2003 Planned Program**

- 162 Fund the transition costs associated with workforce reductions (VERA/VSIP) and required OPM taxes.
- Total 162

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605801A - Programwide Activities</b>						<b>PROJECT</b> <b>M76</b>		
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
M76 ARMAMENT GROUP SUPPORT	1111	1134	1125	1171	1197	1225	1249	0	10433	

**A. Mission Description and Budget Item Justification:** The goal of this program is to expand worldwide allied standardization and interoperability through cooperative research and development (R&D) and technology sharing per SECDEF guidance and especially in support of the U.S. Army. This program partially funds the travel costs and administrative support (studies, analysis, interpretation, equipment, etc.) required to participate in international fora, such as the North Atlantic Treaty Organization (NATO) Army Armaments Group (NAAG), and to pursue new cooperative R&D initiatives and international cooperative agreements such as memoranda of understanding. This program also includes: the United States' share of costs of the NATO Civil Budget, Chapter IX, which funds the NATO Industrial Advisory Group (NIAG) and the Special Fund for Cooperative Planning (U. S. Army is Executive Agent for this NATO bill); partially funds the Four Power Senior National Representatives, Army [SNR (A)], the Technical Cooperative Program, bilateral staff talks, and Army armaments working groups with many nations.

**FY 2001 Accomplishments:**

- 403 Fund domestic and international travel linked to scientific and technological exchanges having military application and mutual benefits to the United States and its Allies.
- 708 Fund the United States' share of the NATO Civil Budget, Chapter IX (Defense Support Programs). U. S. Army is Executive Agent for this NATO bill.

Total 1111

**FY 2002 Planned Program**

- 419 Fund domestic and international travel linked to scientific and technological exchanges having military application and mutual benefits to the United States and its Allies.
- 715 Fund the United States' share of the NATO Civil Budget, Chapter IX (Defense Support Programs). U. S. Army is Executive Agent for this NATO bill.

Total 1134

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605801A - Programwide Activities**

PROJECT

**M76****FY 2003 Planned Program**

- 425 Fund domestic and international travel linked to scientific and technological exchanges having military application and mutual benefits to the United States and its Allies.
- 700 Fund the United States' share of the NATO Civil Budget, Chapter IX (Defense Support Programs). U. S. Army is Executive Agent for this NATO bill.

Total 1125

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605803A - Technical Information Activities**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	32521	38930	34040	35725	36380	38199	39059	Continuing	Continuing
720 TECH INFO FUNC ACTV	2811	3704	3838	4063	4247	4571	4788	Continuing	Continuing
727 TECH INFO ACTIVITIES	3327	5556	5856	6199	6380	6713	6932	Continuing	Continuing
729 YOUTH SCIENCE ACTIV	2008	2118	2171	2207	2245	2328	2405	Continuing	Continuing
730 PERS & TRNG ANALYS ACT	2049	2219	2332	2434	2500	2617	2691	Continuing	Continuing
731 ARMY HIGH PERFORMANCE COMPUTING CENTERS (AHPCC)	10230	17648	7113	7271	7410	7679	7845	Continuing	Continuing
733 ACQUISITION TECH ACT	8205	3662	9356	10085	10051	10627	10593	Continuing	Continuing
735 NET ASSESSMENT DIRECTORATE	735	759	0	0	0	0	0	0	3013
C16 FAST	2398	2522	2618	2659	2702	2792	2848	Continuing	Continuing
C18 BAST	758	742	756	807	845	872	957	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program supports upgrading the accuracy, timeliness, availability, and accessibility of scientific, technical, and management information at all levels of Army Research and Development (R&D). Management of this information is critical to achieve the goals established by the Army's Senior Leadership for the Future Combat Systems and the Objective Force. Use of accurate and timely technical information is essential to successfully meeting the milestones required on the path to the Objective Force, allowing Army S&T leadership to refine investment strategy and quickly react to emerging opportunities and issues. This program includes initiatives to improve information derivation, storage, access, display, validation, transmission, distribution, and interpretation. This program addresses the need to increase the competitiveness and availability of scientific, engineering, and technical skills in the DoD and National workforce through outreach programs aimed at high school students. By providing direct working experience for these students in Army laboratories, the programs expose these students to the working world of science and engineering. Funding under this program enables the conducting of analyses, using behavioral science-based analytic tools, to provide policy and decision makers with soldier-oriented recommendations concerning manpower, personnel and training issues. This program also supports Commanders-in-Chief (CINCs) and major Army commands by providing science advisors to address scientific and technical issues and by providing engineering teams to solve field Army technical problems. Coordination of this program with the other Services is achieved through interservice working groups. The work in this program element is peer-reviewed and is consistent with the Army Science and Technology Master Plan (ASTMP). These projects are managed by the Army Research Laboratory, the Army Materiel Command, the Army Research Office, the Army Research Institute, the Army Corps of Engineers and the Information Management Office. Effective July, 2001 Project 735, Net Assessment Directorate, transfers to the Office of the Secretary of Defense. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments.



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605803A - Technical Information Activities**

This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	30219	33749	34330
Appropriated Value	30499	39294	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	0	0
b. SBIR / STTR	-870	-364	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	3172	0	0
e. Rescissions	-280	0	0
Adjustments to Budget Years Since FY 2002 PB	0	0	-290
Current Budget Submit (FY 2003 PB )	32521	38930	34040

Change Summary Explanation: Funding – FY 2002 Congressional Add: \$10.5M for Army High Performance Computing Centers.

Projects with no R-2As: Project 735, Net Assessment Directorate – FY 2003 Army funding=\$0 - Effective July, 2001 this program transfers from the National Defense University to the Office of the Secretary of Defense. The program will continue to develop and coordinate net assessments of the standing, trends and future prospects for U.S. military capabilities and military potential in comparison with those of other countries or groups of countries to identify emerging or future threats or opportunities for the U.S.

Project C18, Board on Army Science and Technology - FY03 funding=\$756 This program will provide technical expert support for the forecasting of Army Science and Technology needs and to address significant Science and Technology issues.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605803A - Technical Information Activities</b>						PROJECT <b>720</b>		
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
720      TECH INFO FUNC ACTV	2811	3704	3838	4063	4247	4571	4788	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project provides for technology transfer activities to support acquisition, storage, and utilization of technical information for both military and domestic applications. Effective exploitation of S&T information is critical to doing things that have never been done before in achieving the goals established by Senior Army Leadership for the Future Combat Systems and the Objective Force. Specific activities supported include: the Technology Seminar Game; Independent Review Teams; the Defense Technical Information Center (DTIC) Work Unit Information Summary (WUIS) database; the Federal Laboratory Consortium (FLC); the Army Science Board; and administration of the Army's Small Business Innovative Research (SBIR) and Small Business Technology Transfer Program (STTR) in accordance with the "Small Business Research and Development Enhancement Act of 1992". The SBIR/STTR costs are funded in this Program because the Act prohibits use of PE 0605502A funding for: administrative costs; studies and analyses to support the Acquisition Corps; acquisition and retention of scientists and engineers; and improvement of productivity of laboratories and centers. Technology transfer activities make technical information available to both the public and private sectors to reduce duplication in R&D programs and to increase competitiveness in the U.S. business community. In addition, this project provides funding for patent legal expenses and fees for all U.S. Army Materiel Command (AMC) subordinate commands and laboratories. The requirement to fund patent activities is a result of the Omnibus Budget Reconciliation Act requiring the U. S. Patent and Trademark Office to become a completely user-fee funded agency. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 2811      - Provided Army funding support for Federal Laboratory Consortium as required by Public Law 104-113.
- Provided administrative and contractual support for the Army Science Board.
- Provided administrative support for the Army's SBIR and STTR programs.
- Provided Army Science and Technology Reports.
- Provided funding for patent fees and patent legal expenses for AMC commands and laboratories.
- Provided funding for Independent Review Teams to assess technology status and recommend investment strategy.

Total    2811

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605803A - Technical Information Activities**

PROJECT  
**720**

## FY 2002 Planned Program

- 3704 - Provide Army funding support for Federal Laboratory Consortium as required by Public Law 104-113.
  - Provide administrative and contractual support for the Army Science Board.
  - Provide administrative support for the Army's SBIR and STTR programs.
  - Provide Army Science and Technology Reports.
  - Provide funding for patent fees and patent legal expenses for AMC commands and laboratories.
  - Provide funding for Independent Review Teams to assess technology status and recommend investment strategy.

Total 3704

## FY 2003 Planned Program

- 3838 - Provide Army funding support for Federal Laboratory Consortium as required by Public Law 104-113.
  - Provide administrative and contractual support for the Army Science Board.
  - Provide administrative support for the Army's SBIR and STTR programs.
  - Provide Army Science and Technology Reports.
  - Provide funding for patent fees and patent legal expenses for AMC commands and laboratories.
  - Provide funding for Technology Seminar Game
  - Provide funding for Independent Review Teams to assess technology status and recommend investment strategy.

Total 3838

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>				PE NUMBER AND TITLE <b>0605803A - Technical Information Activities</b>				PROJECT <b>727</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
727    TECH INFO ACTIVITIES	3327	5556	5856	6199	6380	6713	6932	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project supports development of decision aids, databases, and automation support for the management and execution of the Army Research, Development, Test and Evaluation (RDTE) Appropriation. It includes the hardware, software and contractor support required to develop and implement a set of management decision aids, databases, and hardware/software tools to support technical and budgetary decisions at the Office of the Secretary of Defense (OSD); Department of the Army (DA), including support of the Army Science and Technology Master Plan; Corps of Engineers; Army Materiel Command (AMC); and Army Research Laboratory. This project includes support of the Acquisition Management Integration Subgroup (AMIS) dealing with acquisition management systems. Most of the efforts in this project are on-going activities to support Army Research, Development and Acquisition programs. Effective exploitation of S&T information is critical to do things that have never been done before in achieving the goals established by Senior Army Leadership for the Future Combat Systems and the Objective Force. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 3327        - Administered S&T database computer engineering support contract.
- Supported Army S&T strategic planning, analysis, and prioritization.
- Supported AMC database and Defense Reliance management.

Total    3327

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605803A - Technical Information Activities**

PROJECT

**727****FY 2002 Planned Program**

- 5556 - Administer S&T database computer engineering support contract.  
- Support Army S&T strategic planning, analysis, and prioritization.  
- Support AMC database and Defense Reliance management.

Total 5556

**FY 2003 Planned Program**

- 5856 - Administer S&T database computer engineering support contract.  
- Support Army S&T strategic planning, analysis, and prioritization.  
- Support AMC database and Defense Reliance management.

Total 5856

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605803A - Technical Information Activities</b>						PROJECT <b>729</b>		
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
729      YOUTH SCIENCE ACTIV	2008	2118	2171	2207	2245	2328	2405	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project supports science activities to encourage over 100,000 high school youths to develop an interest and pursue higher education and employment in the scientific, engineering, and mathematics career fields. These activities are consolidated entirely within this program to "present the Army" to a large potential pool of technical talent to fill future Army S&T workforce needs. The joint Army/Navy Washington regional area Science and Engineering Apprenticeship Program (SEAP) is included in the overall effort. The SEAP provides an eight-week hands-on learning experience for high school students to work with bench level scientists in Army laboratories to encourage more students to pursue scientific/engineering careers. This program enhances the National Laboratory Science and Engineering pool, which in turn supports Defense industry and Army laboratory needs. . The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 2008 - Fostered high school student interest nationally in science, mathematics, engineering and computer science by sponsoring Junior Science and Humanities Symposium (JSHS), International Science and Engineering Fair (ISEF), International Mathematics Olympiad (IMO), and Research and Engineering Apprentice Program (REAP).
- Sponsored joint Army/Navy Washington Regional Area SEAP and increased Army Laboratory/RDEC sponsorship of students.
- Conducted the United Introduction to Engineering (UNITE) program to increase the numbers of Native Americans, African Americans, and Spanish-speaking Americans attending and completing engineering and/or science curricula at the university level.
- Conducted West Point cadet research internship program to enhance cadet training through field experience within Army research labs and centers.

Total 2008

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605803A - Technical Information Activities**

PROJECT

**729****FY 2002 Planned Program**

- 2118 - Foster high school student interest nationally in science, mathematics, engineering and computer science by sponsoring JSHS, ISEF, IMO, and REAP.
  - Sponsor joint Army/Navy Washington Regional Area SEAP and increase Army Laboratory/RDEC sponsorship of students.
  - Conduct the UNITE program to increase the numbers of Native Americans, African Americans, and Spanish-speaking Americans attending and completing engineering and/or science curricula at the university level.
  - Conduct West Point cadet research internship program to enhance cadet training through field experience within Army research labs and centers.

Total 2118

**FY 2003 Planned Program**

- 2171 - Foster high school student interest nationally in science, mathematics, engineering and computer science by sponsoring JSHS, ISEF, IMO, and REAP.
  - Sponsor joint Army/Navy Washington Regional Area SEAP and increase Army Laboratory/RDEC sponsorship of students.
  - Conduct the UNITE program to increase the numbers of Native Americans, African Americans, and Spanish-speaking Americans attending and completing engineering and/or science curricula at the university level.
  - Conduct West Point cadet research internship program to enhance cadet training through field experience within Army research labs and centers.

Total 2171

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605803A - Technical Information Activities**

PROJECT  
**730**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
730 PERS & TRNG ANALYS ACT	2049	2219	2332	2434	2500	2617	2691	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project provides for the application of behavioral science-based analytical technologies by the U.S. Army Research Institute (ARI) for the Behavioral and Social Sciences to current and near-term training, leadership, and soldier-related (TLS) issues. The program is focused on policy issues to enhance soldier performance, and provides the Army a unique capability for addressing such issues as the effects of training on individual and unit readiness, the personnel costs of alternative force structures, and the effects of a smaller Army on readiness and retention of quality soldiers. Requirements for studies and analyses for critical personnel and training issues of immediate importance are solicited on an annual basis. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. Work is performed by the Army Research Institute. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 2049 - Produced a modifiable database of insights of commanders and key leaders on managing change in digital divisions.
- Identified factors related to Army linguist training attrition.
- Identified the Military Occupational Specialty (MOS) for which the need for soldiers with multiple skills will be of the highest operational significance, and the skill composition of those MOS.
- Identified needed changes in spiral development of Basic Officer Leader Course and prepared an evaluation plan for 2002 and 2003 addressing the common core Program of Instruction (POI) and advanced training.
- Derived updated information on Army College Fund and GI Bill usage rates and added to ARI database on these programs.
- Developed new operational Armed Services Vocational Aptitude Battery (ASVAB ) aptitude composites for MOS assignments.
- Validated operational use of Assessment of Individual Motivation (AIM) against initial entry training attrition.
- Estimated MOS reenlistment responsiveness to variations in incentives.

Total 2049



**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605803A - Technical Information Activities**

PROJECT

**730****FY 2002 Planned Program**

- 2219 - Assess the Basic Officer Leadership Course to inform long-term decisions about the program.
- Evaluate AIM as a selection tool for GED-PLUS enlistment program.
- Complete the determination of MOS that require multi-skilled soldiers for the Objective Force.
- Initiate non-intrusive field test evaluation of operational Enlisted Personnel Allocation System (EPAS).
- Support implementation of new ASVAB composites.
- Study lengthy Advanced Individual Training (AIT) courses to determine if any can be shortened without a decrement in training performance.
  
- Compare military performance of soldiers who are Defense Language Institute (DLI) graduates versus soldiers who do not attend DLI but have pre-existing language skills.

Total 2219

**FY 2003 Planned Program**

- 2332 - Conduct studies and analyze training issues identified by the Training and Doctrine Command (TRADOC).
- Conduct studies and analyze personnel issues identified by the Chief of Staff, Army (CSA), Assistant Secretary of the Army for Manpower and Reserve Affairs [ASA(M&RA)], Deputy Chief of Staff for Personnel (DCSPER), and Commander, U.S. Total Army Personnel Command (PERSCOM).

Total 2332

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605803A - Technical Information Activities</b>						<b>PROJECT</b> <b>731</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
731	ARMY HIGH PERFORMANCE COMPUTING CENTERS (AHPCC)	10230	17648	7113	7271	7410	7679	7845	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The work in this project directly supports Objective Force requirements by providing high fidelity modeling, simulation, and analysis of materials, systems, and operational constructs to be employed within the Objective Force. The project supports collaborative efforts to advance computational science and its application to critical Army technologies. The Centers work with researchers at Army laboratories to explore new algorithms in the computational sciences to address critical technology issues in numerous, diverse computational research areas. The Centers also sustain high performance computing environments and educational outreach as an integral part of their mission. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 2355 - Sustained the high performance computing environment and infrastructure in support of Army Tank and Automotive Research, Development and Engineering Center (TARDEC) and application specialists.
- 3069 - Sustained the high performance computing environment and infrastructure in support of the Army Research Laboratory Major Shared Research Center (MSRC) and provided outreach to students and application specialists.
- 1147 - Sustained the high performance computing environment and infrastructure in support of the Army High Performance Computing Research Center's (AHPCRC) research and educational activities and provided outreach to students and application specialists.
- 3659 - Performed critical computational research by applying improved R-G ceramic models to lightweight armor structures in support of TARDEC requirements for the Objective Force.  
 - Applied improved computational techniques for the design of anti-toxin compounds by Army Medical Research Institute of Infectious Diseases (AMRIID).  
 - Applied computational methods in the development of new IR propagation models in combination with other emissions for predicting signatures of FCS.

Total 10230

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605803A - Technical Information Activities**

PROJECT  
**731**

## FY 2002 Planned Program

- 2550 - Sustain the high performance computing environment and infrastructure in support of TARDEC.
  - 3298 - Sustain the high performance computing environment and infrastructure in support of the MSRC.
  - 1300 - Sustain the high performance computing environment and infrastructure in support of the AHPCRC's research and educational activities.
- Conduct technology exchange with Army researchers in critical computational sciences research areas. Technology transfer activities include: applying improved computational models of the properties of new ceramic materials to be used in the support of the Objective Force; applying new computational techniques to drug/vaccine design; and applying new computational methods to the studies of atmospheric modeling; developing improved computational techniques for signature modeling.
- 10500 This one year congressional add supports the upgrade of Army high performance computing capabilities at the High Performance Computing Center. No additional funding is needed to complete this project.

Total 17648

## FY 2003 Planned Program

- 2495 - Sustain the high performance computing environment and infrastructure in support of the TARDEC.
  - 3333 - Sustain the high performance computing environment and infrastructure in support of the MSRC.
  - 1285 - Sustain the high performance computing environment and infrastructure in support of the AHPCRC's research and educational activities.
- Conduct technology exchange with Army researchers in critical computational sciences research areas. Technology transfer activities include: applying improved computational models of the properties of new ceramic materials to be used in the support of the Objective Force; applying new computational techniques to drug/vaccine design; and applying new computational methods to the studies of atmospheric modeling; developing improved computational techniques for signature modeling.

Total 7113

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605803A - Technical Information Activities</b>						<b>PROJECT</b> <b>733</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
733 ACQUISITION TECH ACT	8205	3662	9356	10085	10051	10627	10593	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project improves the Army's acquisition process by applying decision support and expert information systems, and by supporting analysis and evaluation of alternative acquisition strategies using techniques such as value-added analysis and analysis-of-alternates. This project provides the environment for the analysis and evaluation of new information technologies, and concepts and applications in integrated management activities such as Horizontal Technology Integration, and support to meet the dynamic Army acquisition technology requirements. Funds Department of the Army civilians at the Army Materiel Systems Analysis Activity (AMSAA) to conduct critical analyses for Army leadership in support of Army Transformation. AMSAA is the Army center for weapon system performance and effectiveness analysis and certified data (e.g., weapon accuracy, target acquisition, rate of fire, probability of inflicting catastrophic damage) of conceptual, developmental, and existing systems. AMSAA conducts and supports various systems analyses, such as: analyses of alternatives (AoAs), system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, and requirements analyses. These analyses are used by leadership in making acquisition, procurement, and logistics decisions in order to provide quality equipment and procedures to the soldiers. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 4396 - Validated simulation and logical modeling T&E environment to provide a prototype development tool in support of technology base initiatives.
  - Distributed and beta tested application programs and user interface utilities for executive level information systems that offer Standard Query Language (SQL) services to AAC corporate and global databases.
  - Analyzed acquisition program financial programming and budgeting requirements.
  - Continued development of Weapon Systems Handbook, Analytic/Technical Support for Army Support for Army Science and Technology Programs, long-range planning and policy analysis, resource allocation analysis, cost tracking and analysis, cost-effectiveness and database management/financial analysis, special access required technology application concept research/analysis.
- 824 Provided program support to develop a methodology that extracts cost data from existing operational, personnel, logistical and financial systems and analyzed this data to facilitate assessing a cost reduction programs effectiveness or an individual Total Ownership Cost initiatives progress over its life cycle

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support****0605803A - Technical Information Activities****733****FY 2001 Accomplishments: (Continued)**

- 2985 Supported science and technology program strategic planning and management.

Total 8205

**FY 2002 Planned Program**

- 3662 - Analyze the performance and combat effectiveness of materiel systems and technology base programs in support of Army leadership. Included are conduct of and support to analyses of alternatives (AoA). The funding directly supports efforts for the Future Combat System and Joint Tactical Radio System AoAs. Funding will support DA civilians.  
- Conduct studies, analyses and evaluations to improve Army acquisition processes, support integrated management activities and evaluate information technologies. Analyze acquisition program financial programming and budgeting requirements.

Total 3662

**FY 2003 Planned Program**

- 9356 - Conduct studies, analyses and evaluations to improve Army acquisition processes, support integrated management activities and evaluate information technologies.  
- Analyze acquisition program financial programming and budgeting requirements.  
- Continue development of Weapon Systems Handbook, Analytic/Technical Support for Army Support for Army Science and Technology Programs, long-range planning and policy analysis, resource allocation analysis, cost tracking and analysis, cost-effectiveness and database management/financial analysis, special access required technology application concept research/analysis.  
Analyze the performance and combat effectiveness of materiel systems and technology base programs in support of Army leadership. Included are conduct of and support to: analysis of alternatives (AoA), system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion, and technology base analyses. A few examples of planned programs/initiatives to be supported with critical analyses include: Future Combat System (FCS), Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), Digitization Brigade and Below (DB2), reliability physics of failure analyses of various weapon systems, PATRIOT, and Tactical Unmanned Aerial Vehicle (TUAV). Funding will support DA civilians.  
Develop, modify, and maintain weapon system level methodologies, models, and simulations to be used in the conduct of systems analysis. A few examples of planned efforts include: modeling of military operations in urban terrain (MOUT), several aviation modeling improvements, search and target acquisition methodology improvements, signature management, and physics of failure modeling improvements. Funding will support DA civilians.

Total 9356

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605803A - Technical Information Activities</b>					<b>PROJECT</b> <b>C16</b>			
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
C16	FAST	2398	2522	2618	2659	2702	2792	2848	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program focuses Army Materiel Command (AMC) resources to rapidly identify and solve Army field technical problems which enables the improvement of readiness, safety, training, and cut operations and support (O&S) costs. The Commanding General, AMC, institutionalized AMC Field Assistance in Science and Technology (FAST) in 1988 to plan for and allocate all AMC FAST program funding for projects to support CINCs and Army commanders and to operate the director's office. FAST tours of duty provide significant professional growth opportunities for the Army's scientists and engineers. Science advisers are recruited from AMC engineering centers to serve CINCs and major Army commanders worldwide and are also supported by assigned Quick Reaction Coordinators (QRCs) within each AMC engineering center. All costs associated with science advisor assignments are funded by the AMC subordinate commands that supply the science advisers for two to three year tours. FAST manages a level of effort type project with most projects recouping many times their cost in O&S cost savings. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 2398 - Provided continuous activity on over 100 FAST projects. Defined, tested and recommended technological solutions to urgent materiel problems identified by CINCs worldwide and prepared operational needs statements and test results for the highest priority programs.
- Deployed Science Advisors with U.S. Task Forces as requested by CINCs.
- Provided professional growth opportunities for 20 Army senior science advisors and FAST Program tours for Army junior scientists and engineers.
- Provided professional growth opportunities for civilian personnel through the Scientists and Engineers Field Experience with Soldiers (SEFEWS) program, which gives scientists and engineers the opportunity to participate in training events in the field.

Total 2398

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605803A - Technical Information Activities**

PROJECT

**C16**

## FY 2002 Planned Program

- 2522 - Provide continuous activity on over 100 FAST projects. Define, test and recommend technological solutions to urgent materiel problems identified by CINCs worldwide and prepare operational needs statements and test results for the highest priority programs.
  - Deploy Science Advisors with U.S. Task Forces as requested by CINCs.
  - Provide professional growth opportunities for 17Army senior science advisors and FAST Program tours for Army junior scientists and engineers.
  - Provide professional growth opportunities for civilian personnel through the Scientists and Engineers Field Experience with Soldiers (SEFEWS) program, which gives scientists and engineers the opportunity to participate in training events in the field.

Total 2522

## FY 2003 Planned Program

- 2618 - Provide continuous activity on over 100 FAST projects. Define, test and recommend technological solutions to urgent materiel problems identified by CINCs worldwide and prepare operational needs statements and test results for the highest priority programs.
  - Deploy Science Advisors with U.S. Task Forces as requested by CINCs.
  - Provide professional growth opportunities for 17 Army senior science advisors and FAST Program tours for Army junior scientists and engineers.
  - Provide professional growth opportunities for civilian personnel through the Scientists and Engineers Field Experience with Soldiers (SEFEWS) program, which gives scientists and engineers the opportunity to participate in training events in the field.

Total 2618

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605805A - Munitions Standardization, Effectiveness and Safet**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	15961	30437	16014	11447	11611	11898	14023	Continuing	Continuing
296 PYROTECHNIC RELIABILITY & SAFETY	772	897	901	0	0	0	0	0	3970
297 MUN SURVIVABILITY & LOG	4081	4214	4100	4813	4841	5004	5064	0	38327
857 DOD EXPLOSIVES SAFETY STANDARDS	734	768	784	797	816	877	1709	0	7843
858 ARMY EXPLOSIVES SAFETY MANAGEMENT PROGRAM	478	495	496	496	494	492	542	0	3517
859 LIFE CYCLE PILOT PROCESS	0	12917	2503	0	0	0	0	0	15420
862 FUZE TECHNOLOGY INTEGRATION	0	1993	2004	0	0	0	0	0	3997
F21 NATO SMALL ARMS EVAL	471	486	488	487	483	496	501	Continuing	Continuing
F24 CONVENTION AMMO DEMIL	9425	8667	4738	4854	4977	5029	6207	0	63376

**A. Mission Description and Budget Item Justification:** This Program Element supports continuing technology investigations. It provides a coordinated tri-service mechanism for the collection and free exchange of technical data on the performance and effectiveness of all non-nuclear munitions and weapons systems in a realistic operational environment. It provides for NATO interchangeability testing; joint munition effectiveness manuals used by all services; development of standardization agreements (STANAGS) and associated Manuals of Proof and Inspection (MOPI); operation of the North American Regional Test Center (NARTC); evaluation of demilitarization methods for existing conventional ammunition; evaluation of useful shelf life, safety, reliability and producibility of pyrotechnic munitions; and improvement of explosives safety criteria for DOD munitions via the DOD Explosives Safety Board. Pyrotechnic Reliability and Safety (M296) supports pyrotechnic research, development and testing to identify, characterize and resolve reliability, safety, storage and manufacturing issues that impact production availability and field use of pyrotechnics. It will result in the development and demonstration of new, safe, reliable and environmentally acceptable munitions. Munitions Survivability and Logistics (D297) will make Army units more survivable by testing and demonstrating munitions logistics system solutions that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. The Army Explosives Safety Management Program (M858) was established in FY01. The U.S. Army Technical Center for Explosives Safety use the funds in this project to evaluate current explosives safety standards and develop new, scientific and risk-based standards to meet U. S. Army explosives requirements. The Life Cycle Pilot Program (LCPP) (M859) will assess production base capabilities and needs over the acquisition life cycle of various ammunitions, address the producibility of ammunition, transition to type classification and production, and address the ability of the production base to cost effectively produce quality products on schedule. The Fuze Technology Integration program (D862) will improve performance and lower the cost for existing proximity fuzes and enable new applications in submunitions and medium caliber fuzes, addressing advanced proximity fuze sensor technology, Micro-electromechanical Systems (MEMS), Safe and Arms (S&A) technology, and Electronic S&A (ESA) technology for smart munitions. These systems support the Legacy transition path of the Transformation Campaign Plan (TCP).



**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605805A - Munitions Standardization, Effectiveness and Safet**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	16622	16072	15908
Appropriated Value	16776	30672	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-235	0
b. SBIR / STTR	-462	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	-199	0	0
e. Rescissions	-154	0	0
Adjustments to Budget Years Since FY2002 PB		0	106
Current Budget Submit (FY 2003 PB )	15961	30437	16014

FY02 funding increased due to Congressional Adds for public private partnering initiative, cryofracture anti-personnel mine disposal system, and Plasma Ordnance Demilitarization System (PODS).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605805A - Munitions Standardization, Effectiveness and Safet</b>						<b>PROJECT</b> <b>297</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
297    MUN SURVIVABILITY & LOG	4081	4214	4100	4813	4841	5004	5064	0	38327

**A. Mission Description and Budget Item Justification:** This project supports the Army Transformation by making Army units more survivable through the investigation, testing and demonstration of munitions logistics system improvements that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. Key thrusts are munitions storage area survivability, insensitive munitions technology integration and compliance, weapon system rearm, munitions configured load enablers and advanced packaging and distribution system enhancements. Within each thrust, a broad array of solutions will be identified, tested, and evaluated against developed system measures of effectiveness. Optimum, cost effective solutions that enable the rapid projection of lethal and survivable forces will be demonstrated. The early stages of force deployment are especially critical. Theater ammunition storage areas are vulnerable and present the enemy with lucrative targets. These areas and distribution nodes contain the only available munitions stocks in theater. Loss of these munitions could cripple the force, jeopardize the mission, and result in high loss of life. This project mitigates vulnerabilities and ensures a survivable fighting force. This project supports the Legacy transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 784 Completed development and integration of safety and survivability planning information modules, and developed linkage to the Standard Army Ammunition System (SAAS) for the Munitions Survivability Software munitions storage area planning tool. Conducted testing of a prototype with an ordnance battalion which verified that this tool enables soldiers to design an ammunition storage area in only 45 minutes instead of the 80 manhours currently required.
- 350 Designed multi-layer control software for and conducted initial user evaluation of a smart munitions handling crane that will be used to rapidly build warfighter tailored ammunition configured loads
- 94 Demonstrated a Palletized Loading System (PLS) Shoe interface platform that makes Container Roll On / Roll Off Platforms (CROP) compatible with USAF aircraft and a self powered roller platform that facilitates the transfer of 463L pallets between Army and Air Force trucks and materials handling equipment.
- 35 Demonstrated a truck mounted ammunition resupply module and transfer mechanism that will provide the Interim Brigade Combat Team (IBCT) towed howitzer units ready-to-fire ammunition at the firing section.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605805A - Munitions Standardization, Effectiveness  
 and Safet**

PROJECT  
**297**

**FY 2001 Accomplishments: (Continued)**

- 140 Completed engineering tests and demonstrated forklift automation enhancements that permit rapid building of warfighter tailored ammunition configured loads and increase distribution velocity for all in-theater munitions handling operations.
- 195 Analyzed test results and modified less heat sensitive propellants for M915 and XM916 Dual Purpose Improved Conventional Munition (DPICM) projectiles. Completed Insensitive Munitions (IM) and performance tests for expulsion propellant that reduces the munitions' adverse reaction to unplanned stimuli.
- 471 Designed and fabricated prototype ignition devices for an IM active venting system to help minimize the munitions' reaction in cook-off environments.
- 419 Developed and evaluated alternate low temperature gas generating materials and mixtures that, when added to high explosives, will eliminate violent reaction under cook-off environments, thereby helping the munition meet the requirement to have no adverse reaction to unplanned stimuli.
- 507 Completed warhead shaped charge liner contour design optimization and conducted engineering tests and loading evaluation for PAX2A (a less sensitive High Explosive replacement for Comp A-5 in the Multiple Launch Rocket System (MLRS) M85 grenade that will help MLRS meet the requirement to have no adverse reaction to unplanned stimuli)
- 87 Conducted reviews of munitions in development and production to determine if they meet the DoD 5000.2-R requirement to withstand unplanned stimuli and recommended technical approaches to meeting the requirement
- 148 Conducted baseline tests, modified existing design, fabricated prototypes, and conducted fast/slow cook-off tests of IM packaging for the 2.75" rocket/Hydra 70/Advanced Precision Kill Weapon System (APKWS) family of munitions
- 125 Completed development of and updated Army Insensitive Munitions (IM) compliance status database
- 73 Completed sequential rough handling testing of a thermoplastic/fiberglass composite munitions container that will reduce a munition's adverse reaction to unplanned stimuli.
- 247 Conducted ammunition container scoring stress analysis and successfully tested concepts for using container scoring to improve munitions IM characteristics
- 142 Completed long-term predictive testing and evaluation of corrosion prevention materials suitable for use inside munitions packaging.
- 264 Developed concepts and designed prototype lightweight containers (up to a 50% reduction), utilizing advanced materials, for medium and small caliber ammunition that will reduce the logistics footprint, increase handling efficiency and reduce environmental impact compared to currently fielded containers

Total 4081

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605805A - Munitions Standardization, Effectiveness  
and Safet**

PROJECT

**297****FY 2002 Planned Program**

- 893 Complete modifications and field testing of a prototype munitions storage area planning software tool and transition to PM Standard Army Ammunition System (SAAS)/Global Combat Support System-Army (GCSS-A) for fielding. Continue software capability upgrades.
- 435 Develop and integrate laser vision software and hardware, implement performance, stability and safety logic enhancements into the controller for the smart munitions handling crane to facilitate the building of ammunition configured loads.
- 100 Develop preliminary design concepts for an aircraft compatible cargo platform that facilitates the movement of munitions from truck to aircraft to in-theater truck.
- 65 Refine and manufacture alternative less sensitive propellants for M915 and XM916 DPICM projectiles and conduct IM tests.
- 265 Complete development and design integration and conduct IM and engineering tests for an active venting sensor system for the 2.75" rocket/Hydra 70/Advanced Precision Kill Weapon System (APKWS) family of munitions
- 571 Continue the development of alternate low temperature gas-generating material and mixtures to help minimize the reaction in cook-off environments. Conduct safety, characterization, stability, long-term, and demonstration tests
- 559 Conduct IM tests on submunitions, refine warhead liner design, and complete manufacturing process development for a less sensitive High Explosive for MLRS
- 77 Conduct reviews of munitions in development and production to determine if they meet the DoD 5000.2-R requirement to withstand unplanned stimuli and recommend technical approaches to meeting the requirement
- 218 Conduct IM testing and vent patch producibility evaluation for IM packaging for the 2.75" rocket/Hydra 70/Advanced Precision Kill Weapon System (APKWS) family of munitions.
- 74 Continue to populate and maintain Army insensitive munitions (IM) compliance status database
- 406 Develop and test a full-scale munitions packaging prototype using IM container scoring technology
- 51 Identify candidate munitions, conduct bullet and fragment tests and evaluation to determine IM thresholds, and down select IM barrier materials that will help reduce the munitions' reaction to unplanned stimuli
- 60 Conduct engineering and IM testing of advanced fireproof paint materials that, when applied to packaging, will aid in thermal management and help munitions meet or enhance IM performance requirements.
- 100 Test and evaluate sealing concepts for munitions packaging corrosion prevention materials and prepare final report

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE	PROJECT
<b>0605805A - Munitions Standardization, Effectiveness and Safet</b>	<b>297</b>

**FY 2002 Planned Program (Continued)**

- 340 Conduct engineering testing and user evaluation and modify design of prototype lightweight, advanced materials containers for medium and small caliber ammunition

Total 4214

**FY 2003 Planned Program**

- 839 Complete software design of interactivity enhancements for the Munitions Survivability Software ammunition storage area planning tool
- 338 Upgrade crane software and hardware to permit "in the cab" operations capability. Automate crane deploy / stow operations for the smart munitions handling crane.
- 148 Evaluate material cost/weight trade-offs for aircraft compatible flatrack designs
- 100 Develop a data analysis/presentation software module and a data reader for an advanced munitions environmental monitoring system that improves stockpile management by quickly determining munition health and readiness status
- 100 Evaluate design concept for a prototype smart cargo tie-down system for the PLS CROP, flatracks, and trailer, or truck cargo beds
- 300 Develop concepts for projectile venting systems that relieve gas pressure in DPICM artillery munitions to improve their ability to withstand unplanned stimuli. Complete preliminary hardware component designs.
- 298 Complete full-scale performance, IM, and safety testing of active venting IM technology applied to the 2.75" Rocket/Hydra 70/Advanced Precision Kill Weapon System (APKWS) family of munitions. Evaluate application of active venting IM technology to other munitions
- 400 Conduct full-scale performance, IM, and safety testing of a 2.75" Rocket/Hydra 70/Advanced Precision Kill Weapon System (APKWS) family of munitions warhead with low temperature gas-generating mixture IM technology
- 300 Produce MLRS munitions with less sensitive High Explosive and conduct full scale performance and IM testing and evaluation
- 144 Conduct reviews of munitions in development and production to determine if they meet the DoD 5000.2-R requirement to withstand unplanned stimuli and recommend technical approaches to meeting the requirement
- 133 Continue to populate and maintain Army IM compliance status database
- 200 Complete IM bullet and fragment barrier development and conduct engineering tests for selected munitions
- 300 Evaluate the PAX2A explosive loading process for M864 artillery projectiles and conduct sub-scale IM tests of the M864 with PAX2A.
- 500 Complete final design, conduct full scale test and demonstration, and transition prototype lightweight, advanced materials containers for medium and small caliber ammunition

Total 4100

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605805A - Munitions Standardization, Effectiveness**  
**and Safet**

**PROJECT**  
**859**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
859 LIFE CYCLE PILOT PROCESS	0	12917	2503	0	0	0	0	0	15420

**A. Mission Description and Budget Item Justification:** This project supports future ammunition development through continuing technology investigations and industrial assessments. It will assess production base capabilities and needs over the life cycle of various ammunition, address the ultimate producibility of ammunition items, transition them to type classification and production, assist PMs/developers in identifying industry capabilities and associated technology requirements, and address the ability of the production base to cost effectively produce quality products on schedule. Total Ownership Cost Reduction is an important part of the Life Cycle Pilot Process (LCPP). LCPP provides the Research, Development, and Acquisition community the resources to prototype critical technologies and the information to establish affordable, environmentally safe and modern processes that support a wide range of munitions needs.

**FY 2001 Accomplishments:**

Project not funded

**FY 2002 Planned Program**

- 1200 Perform production base readiness assessments to analyze present capabilities and identify trends in munitions and industrial technology
- 517 Develop "pilot" (prototype) critical technologies necessary to establish a quality, affordable, and environmentally safe process that supports a wide range of munitions
- 700 Identify technologies required to support total life cycle of munitions from research and development to demilitarization/disposal
- 10500 Under the Public Private Partnership program, establish and enhance prototype manufacturing lines utilizing commercially available "off-the-shelf" equipment; upgrade and modernize existing manufacturing equipment.

Total 12917

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605805A - Munitions Standardization, Effectiveness  
and Safet**

PROJECT

**859****FY 2003 Planned Program**

- 2000 Continue technology investigations and industrial assessments started in FY 2002. Develop concept designs and plans to transfer life cycle pilot process technology into the supplier base
- 503 Pilot projects to reduce cost of manufacturing munitions.

Total 2503

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>				PE NUMBER AND TITLE <b>0605805A - Munitions Standardization, Effectiveness and Safet</b>				PROJECT <b>862</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
862 FUZE TECHNOLOGY INTEGRATION	0	1993	2004	0	0	0	0	0	3997

**A. Mission Description and Budget Item Justification:** This program supports technology investigations in the areas of munition fuzing and safe and arming (S&A). The program addresses four major areas: Advanced proximity fuze sensor technology integration, including Ultrawideband (UWB) sensor and signal processor technology; Micro-electromechanical Systems (MEMS); Safe and Arm (S&A) technology; and Electronic Safe and Arm (ESA) technology for smart munitions. Development and demonstration of fuzing technology will improve munitions effectiveness for the Future Combat System, cannon artillery, mortars, small and medium caliber ammunition, tanks, mines, countermines, demolitions, rockets, and missiles. Proximity fuze technology will improve performance, lower the cost for existing proximity fuzes, and enable new applications in submunitions and medium caliber fuzes. MEMS S&A technology is needed to develop a MEMS S&A device that will meet MIL-STD requirements for direct and indirect fire munitions. ESA technology for smart munitions will miniaturize, ruggedize, and reduce the cost of components currently proven in missile applications and make them relevant to gun-fired munitions. This project supports the Legacy transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**  
Project not funded

- FY 2002 Planned Program**
- 680 Evaluate proximity sensor technologies, inclusive of the ultrawideband (UWB), all digital processor and clutter resistant air target sensors
  - 250 Develop and evaluate novel penetration techniques
  - 190 Investigate medium caliber fuzing ranging technology
  - 203 Conduct fuze second environmental sensor evaluation
  - 250 Develop MEMS S&A mechanical design. Evaluate micro-energetic initiator methods
  - 225 Develop, evaluate and test gun-hardened, reduced volume ESA components



**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605805A - Munitions Standardization, Effectiveness  
and Safet**

PROJECT

**862****FY 2002 Planned Program (Continued)**

- 195 Develop, evaluate, and test gun hardened, reduced volume ESA components

Total 1993

**FY 2003 Planned Program**

- 642 Continue the evaluation of proximity sensor technologies
- 230 Refine novel penetration designs and conduct further evaluation and tests
- 275 Continue medium caliber technology development, integrate proximity sensor technologies
- 210 Continue second environmental sensor evaluations, develop implementation concepts in fuze architectures
- 200 Continue fuze power source technology evaluations
- 340 Continue MEMS S&A mechanical design evaluations. Further evaluate micro-energetic initiators
- 107 Test and evaluate ESA components and subassemblies and integrate them with smart munitions

Total 2004

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605805A - Munitions Standardization, Effectiveness and Safet</b>	PROJECT <b>F24</b>
--------------------------------------------------	---------------------------------------------------------------------------------------------	-----------------------

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
F24 CONVENTION AMMO DEMIL	9425	8667	4738	4854	4977	5029	6207	0	63376

**A. Mission Description and Budget Item Justification:** This project supports a continuing technology evaluation of demilitarization methods for existing conventional ammunition and conventional ammunition recovered from formerly used defense sites (FUDS). It will complete the development and demonstration of new, safe, and environmentally acceptable alternatives to open burning/open detonation (OB/OD) of recovery/recycle/reclamation equipment, and processes to reduce the extremely large stockpile of munitions in the resource recovery disposition account and munitions from FUDS.

**FY 2001 Accomplishments:**

- 3677 Continued testing, evaluation, and prove-out of pilot scale plasma arc technology for Conventional munitions and resource recovery potential
  - 3000 Continued cryofracture development for demilitarization of Anti-personnel Landmines (APL) and other munitions
  - 1950 Continued prove-out of pilot scale Super Critical Water Oxidation (SCWO) technology
  - 648 Continued development of recycle/reuse technology for magnesium/aluminum
  - 150 Continued development of smoke generating fog oil recovery technology
- Total 9425

**FY 2002 Planned Program**

- 2000 Continue testing, evaluation and prove-out of prototype plasma arc technology for conventional ammunition and resource recovery potential
- 3000 Continue cryofracture development for demilitarization of APL and other munitions
- 500 Continue prove-out of pilot scale SCWO technology
- 650 Continue development of recycle/reuse technology for magnesium/aluminum

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605805A - Munitions Standardization, Effectiveness  
and Safet**

PROJECT

**F24****FY 2002 Planned Program (Continued)**

- 800 Develop enhanced flexible energetic material handling automation upgrade capabilities sized to real time requirements
- 1717 Initiate development of transportable alternative materials recovery capabilities for various energetic components

Total 8667

**FY 2003 Planned Program**

- 956 Complete prove out prototype plasma arc technology for conventional ammunition and resource recovery potential
- 1000 Complete cryofracture development for demilitarization of APL and other munitions
- 1000 Complete prove out of prototype SCWO technology
- 387 Complete development of recycle/reuse technology for magnesium/aluminum
- 495 Continue development of enhanced flexible energetic material handling automation upgrade capabilities sized to real time requirements
- 900 Continue development of transportable alternative materials recovery capabilities for various energetic components

Total 4738

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605857A - Army Acquisition Pollution Prevention Program**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	5019	1719	1902	1495	1705	1616	1280	0	14740
031 ACQUISITION POLLUTION PREVENTION	5019	1719	1594	1117	1114	1112	1108	0	12783
06E ENVIRONMENTAL RESTORATION TECH SUPPORT	0	0	159	191	222	0	0	0	576
06G ENVIRONMENTAL COMPLIANCE TECHNOLOGY SUPPORT	0	0	149	187	369	504	172	0	1381

**A. Mission Description and Budget Item Justification:** This program element resources environmental quality technology (EQT) related management support functions including support of RDT&E required for EQT technical integration efforts at demonstration/validation test sites, technical information and activities, test facilities and general test instrumentation, and EQT requirement assessments. Funds required to support technology transfer associated with technology demonstrated or validated as part of Army EQT projects are included in this program element. In addition, support to the Army weapon system acquisition community to address generic environmental quality related requirements are included under the Acquisition Pollution Prevention Program.

The Acquisition Pollution Prevention Program provides support to the weapon system acquisition community; e.g., program and project managers, to integrate environmental quality analyses into system acquisition. The Acquisition Pollution Prevention Program goal is to resolve environmental quality issues related to weapon systems that are identified during design, development, testing, operation, or support to reduce Army environmental liabilities and life-cycle cost and includes the following: support to the Joint Group for Pollution Prevention, efforts to eliminate the use of ozone-depleting materials from weapon systems and facilities, and helping to ensure the continued availability of Halon 1301 to support weapon system fire suppression requirements through the year 2020.

The Environmental Restoration Technology Support Project will, beginning in FY 2003: (1) support the technical integration of an enhanced sensing/processing system for optimized multi-sensor unexploded ordnance (UXO) identification and discrimination at an RDT&E validation site and (2) support the technical integration of a comprehensive hazard/risk assessment capability to predict contaminant, ecological, and human risks on active and inactive firing ranges of military unique materials at an RDT&E demonstration site.

The Pollution Prevention Regional Partnership project will resource management and support to integrate technologies and techniques to: (1) control non-hazardous Army-generated solid wastes and evaluate new processes that are used to handle, reduce the volume, treat, recycle, or recover material and components from solid waste to reduce the cost of solid waste handling and disposal, (2) test and implement innovative technologies to divert construction and demolition debris from non-hazardous solid waste streams and validate an automated model for estimating demolition debris

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605857A - Army Acquisition Pollution Prevention Program**

recyclable material contained in deconstruction projects, and (3) develop technology transfer plans in partnership with Interstate Technology and Regulatory Cooperation (ITRC) to transfer the information to military customers and the private sector on regional basis.

The Compliance Technology Support Project will, beginning in FY 2003, resource management support of transfer technology to: (1) identify risk assessment parameters for determining environmental compliance for training and live-fire operations and to identify on-post and off-post impacts; (2) develop and validate a compliance risk assessment model for range siting, design, and maintenance to provide input to the military construction process; and (3) evaluate and validate improved designs for ranges that incorporate erosion and contaminant control technologies for current range problems and to support future sustainable range designs.

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	5368	1733	1766
Appropriated Value	5418	1733	0
a. Congressional General Reductions	0	-14	0
b. SBIR/STTR	-160	0	0
c. Omnibus or Program Transfers from Outside the Army	2000	0	0
d. Below Threshold Reprogramming	-2189	0	0
e. Rescissions	-50		0
Adjustments to Budget Years Since FY2002 PB	0	0	136
Current Budget Submit (FY 2003 PB )	5019	1719	1902

Change Summary Explanation: Funding - FY 2001: Funds transferred from Defense-Wide RDTE in support of the Pollution Prevention Regional Partnership program (+2000). Funds were reprogrammed to higher priority Army needs (-2189). FY 2003: Funds were added to this program element to begin supporting the integration of technology to support sustainable live-fire training range design and maintenance.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605857A - Army Acquisition Pollution Prevention Program**

PROJECT  
**031**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
031 ACQUISITION POLLUTION PREVENTION	5019	1719	1594	1117	1114	1112	1108	0	12783

**A. Mission Description and Budget Item Justification:** The Army Acquisition Pollution Prevention Program (A2P3) provides support to the weapon system acquisition community to integrate environmental quality issues and concerns into the weapon system acquisition process. The Army Acquisition Executive, the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), and the Commanding General, Army Materiel Command have defined the functions of A2P3 in coordination with the office of the Assistant Secretary of the Army for Installations and Environment. This project supports acquisition policy support for the environmental quality concerns of Program Executive Officers and Program Managers and environmental training for the weapon system acquisition community. A2P3 helps the Army achieve environmental compliance with its weapon systems directed by international treaties, Federal statutes, National Emission Standards, Executive Orders, and DoD and Army policies and regulations.

A2P3 funds weapon system acquisition support to the Army's Environmental Technology Technical Council and coordinates environmental quality related weapon systems' needs for expanded science and technology efforts. A2P3 projects are executed using appropriate Army research, development, and engineering centers; Army laboratories; the National Defense Center for Environmental Excellence (NDCEE); and contractor facilities. New technologies are assessed for toxicity and safety risk and are implemented by weapon system program managers with their resources during design, development, or production; on the shop floor; during operations; and/or through improved materials and processes used by or on their system.

A2P3 includes Army efforts to eliminate the use of ozone-depleting chemicals from weapon systems and facilities, the Army Halon 1301 reserve, and Army acquisition efforts to eliminate the use of hazardous and toxic materials on Army weapon systems. A2P3 works in coordination with field units and field commands to leverage lessons-learned from field commanders to reduce the burden of hazardous materials on logistics and to reduce hazardous waste generated during operations and support of weapon systems. This includes supporting National Environmental Policy Act (NEPA) analyses by sharing data at the major command, installation, and unit level as appropriate. The focus of A2P3 is on readiness, improved acquisition processes, reduced supportability burden, and life-cycle cost avoidances. A2P3 includes support to the Joint Group for Pollution Prevention (JG-PP).

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**6 - Management support****0605857A - Army Acquisition Pollution Prevention  
Program****031****FY 2001 Accomplishments:**

- 136 - Toxicological assessment of alternative new materials conducted.
  - 750 - Program management and oversight conducted.
  - 1015 - Process support to Army research, development, and engineering centers provided.
  - 412 - Joint Group for Pollution Prevention supported.
  - 706 - Project to support evaluation of controlled detonation chambers used to destroy chemical munitions and of technologies to safely destroy unexploded ordnance.
  - 2000 - Pollution Prevention Regional Partnership
- Total 5019

**FY 2002 Planned Program**

- 724 - Program management and oversight
  - 180 - Halon management and oversight
  - 150 - Toxicity assessment for new materials and processes.
  - 120 - Support the Joint Group for Pollution Prevention.
  - 175 - Environmental Technology Technical Council support
  - 370 - Test and Evaluation for Ammunition/Munitions  
- Test and Evaluation for Wheeled and Tracked Vehicles
- Total 1719

**FY 2003 Planned Program**

- 711 - Program management and oversight
- 180 - Halon management and oversight
- 150 - Toxicity assessment for new materials and processes
- 120 - Support the Joint Group for Pollution Prevention.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)**

**February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605857A - Army Acquisition Pollution Prevention  
Program**

PROJECT

**031**

**FY 2003 Planned Program (Continued)**

- 175 - Environmental Technology Technical Council support
- 258 - Test and Evaluation for Wheeled and Tracked Vehicles

Total 1594



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605898A - Management Headquarters (Research and Development)</b>								
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost		8185	7208	11533	9736	10126	10520	10959	0	190496
831	AKAMAI	2884	0	0	0	0	0	0	0	93420
M65	ARMY TEST AND EVALUATION COMMAND (ATEC)	5301	7208	11533	9736	10126	10520	10959	0	97076

**A. Mission Description and Budget Item Justification:** This program funds the Research, Development, Test and Evaluation (RDTE) Army Management Headquarters Activities (AMHA) for the U.S. Army Research Laboratory (ARL), Adelphi, MD and the Headquarters, U.S. Army Test and Evaluation Command (ATEC) located at Aberdeen Proving Ground, MD. This program provides for (1) the development of policy and guidance, (2) long-range planning, (3) programming and budgeting, (4) management of resources (manpower and dollars), and (5) review and evaluation of program performance. This program also provides salaries and related personnel benefits for authorized civilian personnel and the associated administrative support (travel, supplies and equipment) and administrative functions to include staff/management functions of resource management; installation management; policy and methodology; and morale, welfare and recreation.

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	8293	7268	5038
Appropriated Value	8371	7268	0
Adjustments to Appropriated Value	0	0	0
b. Congressional General Reductions	0	-60	0
b. SBIR/STTR	-108	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-78	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	6495
Current Budget Submit (FY 2003 PB )	8185	7208	11533

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605898A - Management Headquarters (Research and Development)**

Change Summary Explanation: Funding: FY 2003 - Increase (+5151) is due to mandated realignment of manpower dollars from Operations and Maintenance, Army (OMA) to RDTE and the implementation of a legislative change directing each agency to pay the full Government share of the accruing retirement costs of current Civil Service Retirement System (CSRS) employees and the accruing health care costs of all future Federal retirees (+1344).

## ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>		<b>PE NUMBER AND TITLE</b> <b>0605898A - Management Headquarters (Research and Development)</b>						<b>PROJECT</b> <b>M65</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
M65 ARMY TEST AND EVALUATION COMMAND (ATEC)		5301	7208	11533	9736	10126	10520	10959	0	97076

**A. Mission Description and Budget Item Justification:** This project provides the funding for management headquarters activities at the U.S. Army Research Laboratory (ARL), Adelphi, MD as well as the Headquarters, U.S. Army Test and Evaluation Command (ATEC) located at Aberdeen Proving Ground, MD. Management Headquarters are primarily responsible for (1) developing RDTE program policy and guidance; (2) performing long range planning, programming and budgeting; (3) providing for the management of resources; and (4) conducting program performance review and evaluation. This project provides for the salaries and related personnel benefits for the authorized civilian personnel and the administrative support (temporary duty travel, operating supplies and equipment) and administrative functions to include staff/management functions of resource management; installation management; policy and methodology; and morale, welfare and recreation.

Funding increase starting in FY 2003 is due to mandated realignment of manpower dollars from Operations and Maintenance, Army (OMA) to RDTE.

**FY 2001 Accomplishments:**

- 5301 Funded the operation of ARL headquarters activities which administers the Army laboratory research and development program to sustain technological superiority.

Total 5301

**FY 2002 Planned Program**

- 2034 Civilian labor and other support required to manage and administer the Army test and evaluation mission at ATEC.
- 5174 Funds the operation of Army Research Lab headquarters activities which administers the Army laboratory research and development program to sustain technological superiority.

Total 7208

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605898A - Management Headquarters (Research  
and Development)**

PROJECT

**M65****FY 2003 Planned Program**

- 11533 Civilian labor and other support required to manage and administer the Army test and evaluation mission at ATEC.

Total 11533

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)</b>					<b>PROJECT</b> <b>E55</b>			
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
E55 JNT LAND ATK MSL DEF ELEVATED NETTED SENSOR-JLENS		25981	32130	29081	56520	57399	68089	67907	0	373825

**A. Mission Description and Budget Item Justification:** The Under Secretary of Defense (Acquisition and Technology) and the Army Acquisition Executive (AAE) directed the establishment of the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) Project Office (PO), for Land Attack Cruise Missile Defense (LACMD). This is a multiservice effort with the Army as the lead service. The JLENS PO is assigned to the Program Executive Office for Air and Missile Defense. The JLENS mission is to develop, build, test, field and manage a low cost, Elevated Netted Sensor System that improves battlefield information superiority and airspace dominance for US and Allied Warfighters. JLENS is a theater based system employing advanced technologies with specific focus on LACMD. JLENS sensors provide the over-the-horizon (OTH) surveillance/precision tracking for the Air Directed Surface to Air Missile (ADSAM) concept. The role of the JLENS is to expand the battlefield commander's surveillance and engagement capability against cruise missiles and other targets via the extension of the battle space for systems such as Patriot, Medium Extended Air Defense System (MEADS), and the Navy's Standard Missile and Advanced Medium Range Air-to-Air Missile (AMRAAM).

The cruise missile threat continues to grow and evolve. The relatively low operating cost and high demonstrated accuracy of cruise missiles makes them a viable alternative to manned aircraft or Theatre Ballistic Missiles (TBM). Their long range and low altitude profile allow them to attack potentially undetected from any direction. The Land-Attack Cruise Missile (LACM) threat is expected to grow as producers export complete systems globally. Complicating the issue are the additional problems presented when this threat is considered in the larger context of the overall theater air campaign. Large numbers of aircraft, cruise missiles, unmanned aerial vehicles (UAVs), and large caliber rockets will characterize the operational airspace in 2010. An enemy cruise missile attack in this tactical environment, particularly if part of an integrated attack involving artillery, air and missile forces, complicates timely target identification and increases the chance of asset damage or fratricide. As a response to this threat, JLENS provides the Theater Commander-in-Chief (CINC) with a cost effective, long endurance (up to 30 days), extended range detection and tracking capability required to defeat the proliferating land attack cruise missile threat. JLENS complements existing fixed wing surveillance assets by providing long-endurance aerial platforms for long-range wide-area surveillance, precision tracking of airborne and surface targets, combat identification, and communication relays. The presence of JLENS allows the theater CINC to re-allocate costly, manned aircraft to support other critical missions. This system supports the objective transformation path of the Transformation Campaign Plan (TCP).

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)****February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development****0102419A - Joint Land Attack Cruise Missiles  
Defense (JLENS)****E55****FY 2001 Accomplishments:**

- 17005 Continued contract design and demonstration program.
- 6027 Other contracts and Other Government Agencies (OGA)
- 2949 JLENS In-House

Total 25981

**FY 2002 Planned Program**

- 22027 Complete fire control radar hardware and software design, communication payload design, and processing station design.
- 6830 Other contracts and OGA
- 3273 JLENS In-House

Total 32130

**FY 2003 Planned Program**

- 20703 Continue contract design and demonstration program
- 5007 Other contracts and OGA
- 3371 JLENS In-House

Total 29081

## ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0102419A - Joint Land Attack Cruise Missiles  
 Defense (JLENS)**

PROJECT  
**E55**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	26743	30408	30356
Appropriated Value	26996	32408	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-278	0
b. SBIR / STTR	-767	0	0
c. Omnibus or Other Above Threshold Reduction	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-248	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-1275
Current Budget Submit (FY 2003 PB)	25981	32130	29081

**C. Other Program Funding Summary:** Not applicable for this item.

## ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0102419A - Joint Land Attack Cruise Missiles  
 Defense (JLENS)**

PROJECT  
**E55**

**D. Acquisition Strategy:** JLENS is designed to provide the joint war fighter with a Land Attack Cruise Missile Defense (LACMD) Over-the-Horizon (OTH) capability to engage cruise missiles masked to surface based sensors and contribute to the development of a Single Integrated Air Picture (SIAP). JLENS has a requirement to develop, test, and provide a contingency deployable prototype Fire Control with Sector Surveillance radar demonstration system. This system consists of a 71-meter aerostat platform, fire control with sector surveillance radar, mobile mooring station, communications payloads, associated ground support equipment and government furnished equipment. The JLENS System Development and Demonstration (SDD) program provides for the design and development of a JLENS Operational Requirements Document (ORD) threshold system. This system consists of both the Fire Control and Surveillance Radar, each with its 71-meter aerostat platform, mobile processing station, mobile mooring station, communications payloads, associated ground support equipment and government furnished equipment. The JLENS program will produce 18 systems. The JLENS Operations and Sustainment (O&S) program has the requirement to support JLENS fielded systems.

<b><u>E. Schedule Profile</u></b>	<b><u>FY 2001</u></b>	<b><u>FY 2002</u></b>	<b><u>FY 2003</u></b>	<b><u>FY 2004</u></b>	<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>
PTIR Critical Design Review (CDR)	4Q						
Continuation of PTIR CTD		1-4Q					
JROC			4Q				
MILESTONE B System Development and Demonstration				4Q			
System Development and Demonstration Contract Award					4Q		
ASARC IPR						4Q	



## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0102419A - Joint Land Attack Cruise Missiles Defense**  
**(JLENS)**

**PROJECT**  
**E55**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Concept Definition	CPFF	H&R/MA & CA	2007	0		0		0		0	2007	0
b . Concept Definition	CPFF	Lockheed Martin/N.Y./OH/AL	2000	0		0		0		0	2000	0
c . Concept Definition	CPFF	Northrop Grumman/MD	1981	0		0		0		0	1981	0
d . OGAs	MIPR	Multiple	13256	575		487		500		Continue	14818	Continue
e . Risk Mitigation, Design, Development	CR/CPIF	Raytheon System Co. MA/CA/FL	47033	17005		22027		20703		Continue	106768	Continue
f . SBIR / STTR			642	0		0		0		0	642	0
g . GFE			1201	0		0		0		0	1201	0
h . CEC/ SM -2 CEC	MIPR	Navy/Multiple	4219	0		0		0		0	4219	0
i . Design/Dev/Demo Support	CPIF	CAS/AL	5974	1667		2206		2206		Continue	12053	Continue
j . Misc. Contracts	SS/CPFF	Multiple	3151	775		791		701		Continue	5418	Continue
k . ADaM			0	1800		0		0		0	1800	0
l . AoA/ORD/TEMP			0	1125		1624		1600		0	4349	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0102419A - Joint Land Attack Cruise Missiles Defense**  
**(JLENS)**

**PROJECT**  
**E55**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
m . Lightweight x-band radar antenna			0	0		1722		0		0	1722	0
Subtotal:			81464	22947		28857		25710		Continue	158978	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Misc Support			2084	0		0		0		0	2084	0
b . In-House, JLENS		PEO AMD, HSV, AL	10733	2949		3273		3371		Continue	20326	Continue
c . OGA Salaries		PEO AMD, HSV, AL	593	0		0		0		Continue	Continue	Continue
Subtotal:			13410	2949		3273		3371		Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0102419A - Joint Land Attack Cruise Missiles Defense**  
**(JLENS)**

**PROJECT**  
**E55**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Maintain Test Bed	SS/CPFF	CAS-TX, NM	2297	85		0		0		0	2382	0
b . Misc. OGA&Contracts	Mul/MPR	AL/TX/NM	1656	0		0		0		0	1656	0
Subtotal:			3953	85		0		0		0	4038	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

Project Total Cost:			98827	25981		32130		29081		Continue	Continue	Continue
---------------------	--	--	-------	-------	--	-------	--	-------	--	----------	----------	----------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203726A - Adv Field Artillery Tactical Data System**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	35420	36650	38161	22683	6942	45462	41082	0	322760
322 ADV FA TAC DATA SYS/EFF CNTRL SYS (AFATDS/ECS)	35420	36650	33691	22285	6942	45462	41082	0	317892
33C IMPROVED POSITION AZIMUTH DETERMINING SYS (IPADS)	0	0	4470	398	0	0	0	0	4868

**A. Mission Description and Budget Item Justification:** The Advanced Field Artillery Tactical Data System (AFATDS) will broaden and modernize the US Army fire support command, control and communications (C3) system. As a part of the Army Battle Command System (ABCS) architecture, AFATDS will provide automated fire support, fire planning and the coordination and employment of all service/combined fire support assets to complement the commander's scheme of maneuver. AFATDS will accomplish this by providing fully automated support for planning, coordination and control of all fire support assets (mortars, close air support, naval gunfire, attack helicopters, offensive electronic warfare, field artillery cannons, rockets and guided missiles) in the execution of close support, counterfire, interdiction, suppression of enemy air defense and deep operations. AFATDS will automatically implement detailed commander's guidance in the automation of operational planning, movement control, targeting, target value analysis and fire support planning. This project is a replacement system for the Tactical Fire Direction System (TACFIRE) and the Initial Fire Support Automated System (IFSAS). The AFATDS supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203726A - Adv Field Artillery Tactical Data System**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	36471	36969	33922
Appropriated Value	36816	36969	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-319	0
b. SBIR / STTR	-1058	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-338	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	4239
Current Budget Submit (FY 2003 PB )	35420	36650	38161

FY03 Increase is attributed to addition of Project 33C Improved Position Azimuth Determining System (IPADS).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0203726A - Adv Field Artillery Tactical Data System</b>				PROJECT <b>322</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
322 ADV FA TAC DATA SYS/EFF CNTRL SYS (AFATDS/ECS)	35420	36650	33691	22285	6942	45462	41082	0	317892

**A. Mission Description and Budget Item Justification:** Project D322 - AFATDS Development: The project is composed of Army Battlefield Command System (ABCS) Common Hardware/Software (CHS) employed in varying configurations at different operational facilities (or nodes) and unique system software interconnected by tactical communications in the form of a software-driven, automated network. Both hardware and software will be capable of being tailored to perform the fire support command, control, and coordination requirements at any level of command. This will permit variable command and control relationships and full fire support functionality at all echelons of field artillery and maneuver, from echelons above corps to battery or platoon in support of all levels of conflict. The Marine Corps will also utilize AFATDS. AFATDS will interoperate with Navy and Air Force Command and Control weapon systems as well as the Allied fire support systems ADLER (Germany), ATLAS (France), BATES (UK), and SIR (Italy).

**FY 2001 Accomplishments:**

- 2108 Support Test and Materiel Release of AFATDS '99 Software
- 33312 Continue AFATDS '99 and begin AFATDS '99+ and AFATDS Version 7 software development in support of Fire Support and ABCS functionality development to include FDD/FDC.

Total 35420

**FY 2002 Planned Program**

- 2780 Prepare for Test and Materiel Release of AFATDS Version 7 Software
- 33870 Continue AFATDS '99+ and AFATDS Version 7 software development in support of Fire Support and ABCS functionality development to include FDC.

Total 36650

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203726A - Adv Field Artillery Tactical Data System**      PROJECT  
**322**

**FY 2003 Planned Program**

- 2910 Support Test and Materiel Release of AFATDS Version 7 Software
- 578 ABCS System Engineering and Integration Efforts.
- 30203 Complete AFATDS Version 7 software development and start AFATDS Version 8 software development in support of Fire Support and ABCS functionality development.

Total 33691

<b><u>B. Other Program Funding Summary</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
OPA (B28600)	68590	49096	74723	53234	47066	50435	25566	67692	480258
Spares (BS9708)	2190	2798	2421	2605	2338	2698	0	0	17420
MOD IN SERVICE EQUIP (B28620)	0	0	2976	2968	0	0	0	0	5944

**C. Acquisition Strategy:** AFATDS software will be developed in incremental releases. AFATDS '96, which received Materiel Release on 13 December 1996, automated 51% of the required tasks including fire support planning, target nomination, order of fire, and meteorological/survey operations. Subsequent releases add additional functions, providing automated capabilities for the required tasks including fire support sensor planning and additional munitions. Completion of AFATDS Version 10 will result in automation of all required functionality, as currently defined, including full fire support planning, target acquisition support, and field artillery mission support. Additionally, the AFATDS software will utilize the Joint Common Operating Environment (JCOE) and the Joint Technical Architecture.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203726A - Adv Field Artillery Tactical Data System**      PROJECT  
**322**

<u>D. Schedule Profile</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
AFATDS '98 Materiel Release							
AFATDS '99 Limited User Test (LUT)	2Q						
AFATDS '99 Materiel Release		2Q					
AFATDS Version 7 LUT			1Q				
AFATDS Version 7 Materiel Release			3Q				
AFATDS Version 8 LUT				3Q			
AFATDS Version 8 Materiel Release					1Q		
AFATDS Version 9 LUT						1Q	
AFATDS Version 9 Materiel Release						3Q	
AFATDS Version 10 LUT							3Q



## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203726A - Adv Field Artillery Tactical Data System**

**PROJECT**  
**322**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Development	SS/CPAF	Raytheon Systems Corp, Ft. Wayne, IN	83149	30554	2Q	32380	2Q	29068	2Q	100737	275888	0
b . ABCS System Engineering & Integration Efforts	MIPR	DISA/ATCCS/PEO C3S, NJ	2582	1524	2Q	0		578	2Q	0	4684	0
c . Peculiar Support Equipment (PSE)	C/FFP	Litton, San Diego, CA and General Dynamics, Taunton, MA	2287	390	2Q	510	2Q	475	2Q	2850	6512	0
<b>Subtotal:</b>			88018	32468		32890		30121		103587	287084	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Development Support	MIPR	CECOM, NJ	800	120	2Q	236	2Q	375	2Q	1409	2940	0
b . Software Development Support	MIPR	FSSSED, Ft. Sill, OK and TELOS, Shrewsbury, NJ	1649	318	2Q	482	2Q	375	2Q	1409	4233	0
c . Engineering Support	MIPR	CECOM, NJ	1099	337	2Q	305	2Q	282	2Q	704	2727	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203726A - Adv Field Artillery Tactical Data System**

**PROJECT**  
**322**

II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			3548	775		1023		1032		3522	9900	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Management	MIPR	CECOM, NJ	205	110	2Q	115	2Q	120	2Q	1911	2461	0
b . Test Support	MIPR	Various	763	663	2Q	1030	2Q	1000	2Q	1911	5367	0
Subtotal:			968	773		1145		1120		3822	7828	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development**

**0203726A - Adv Field Artillery Tactical Data System**

**322**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Support	C/CPFF	CSC, NJ	1379	345	2Q	325	2Q	400	2Q	1917	4366	0
b . PROGRAM MANAGEMENT	MIPR	Various	2447	1059	2Q	1267	2Q	1018	2Q	2923	8714	0
Subtotal:			3826	1404		1592		1418		4840	13080	0
Project Total Cost:			96360	35420		36650		33691		115771	317892	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0203726A - Adv Field Artillery Tactical Data System</b>				PROJECT <b>33C</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
33C IMPROVED POSITION AZIMUTH DETERMINING SYS (IPADS)	0	0	4470	398	0	0	0	0	4868

**A. Mission Description and Budget Item Justification:** This program element supports modernization of the Army's Field Artillery and Air Defense Artillery survey capabilities. The current Position & Azimuth Determining System (PADS) was fielded in the early 1980s with 1970s technology. Poor Reliability (84 hours Mean Time Between Failure) and obsolete technology has resulted in a system that is no longer economically supportable. The IPADS is a new start program that will leverage technology advances, substantially improve reliability, and provide a digital communications capability to meet the needs of the Army of the Future. IPADS will provide a state of the art system with a Reliability that will exceed 2000 hours Mean Time Between System Abort which will save millions in operations and support costs.

**FY 2003 Planned Program**

- 1700 Procure test articles (Qty 8)
- 2000 Conduct Product Verification and Operational testing
- 770 Conduct Independent Evaluation, Begin Evaluation Report, and Perform Management Actions.

Total 4470

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203726A - Adv Field Artillery Tactical Data System**

PROJECT  
**33C**

<u>B. Other Program Funding Summary</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
OPA-2 Improved Position & Azimuth Determining System (IPADS)	0	480	2015	9279	12581	12557	7827	0	44739

**C. Acquisition Strategy:** The IPADS program is an NDI being procured to a Performance Specification. The acquisition strategy will be a multi-year IDIQ Firm Fixed Price effort.

<u>D. Schedule Profile</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Procure Test Articles			1Q				
Product Verification/Developmental Test			4Q				
Operational Test			4Q				
Independent Evaluation Report				1Q			
Type Classification				2Q			
First Unit Equipped				4Q			

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203726A - Adv Field Artillery Tactical Data System**

**PROJECT**  
**33C**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Article Procurement (Qty 8)	IDIQ/FFP	TACOM - RI, Rock Island, IL	0	0		0		1700	1Q	0	1700	1700
Subtotal:			0	0		0		1700		0	1700	1700

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contract Management	MIPR	TACOM - RI, Rock Island, IL	0	0		0		40	1Q	0	40	0
b . System Eng & QA	MIPR	TACOM - ARDEC, Rock Island, IL	0	0		0		249	1Q	0	249	0
c . Logistics Management	MIPR	TACOM - RI, Rock Island, IL	0	0		0		100	1Q	0	100	0
Subtotal:			0	0		0		389		0	389	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203726A - Adv Field Artillery Tactical Data System**

**PROJECT**  
**33C**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Environmental Test	MIPR	Aberdeen Proving Ground, MD	0	0		0		400	3-4Q	0	400	0
b . Accuracy Test	MIPR	Fire Spt Test Dir., Ft. Sill, OK	0	0		0		250	3-4Q	0	250	0
c . Reliability Test	MIPR	Fire Spt Test Dir., Ft. Sill, OK	0	0		0		600	3-4Q	0	600	0
d . Air Drop Test	MIPR	Abn Test Dir., Ft. Bragg, NC	0	0		0		200	3-4Q	0	200	0
e . Aviation Operation Test	MIPR	Aviation Test Dir., Ft. Rucker, AL	0	0		0		550	3-4Q	0	550	0
f . Independent Evaluation	MIPR	Army Test & Eval Ctr., Alexandria, VA	0	0		0		175	3-4Q	398	573	0
Subtotal:			0	0		0		2175		398	2573	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203726A - Adv Field Artillery Tactical Data System**

**PROJECT**  
**33C**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management	MIPR	TACOM - RI, Rock Island, IL	0	0		0		206	1Q	0	206	0
Subtotal:			0	0		0		206		0	206	0
Project Total Cost:			0	0		0		4470		398	4868	1700



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203735A - Combat Vehicle Improvement Programs**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	95689	166449	54465	23798	16291	13112	13328	Continuing	Continuing
330 ABRAMS TANK IMPROVE PROG	76687	166136	54465	23798	16291	13112	13328	Continuing	Continuing
344 FIRE SPT TM VEH INTG	6069	0	0	0	0	0	0	0	19146
371 BRADLEY BASE SUSTAIN	1958	0	0	0	0	0	0	0	88115
718 GRND COMBAT VEHICLE HTI	8585	215	0	0	0	0	0	0	25284
C64 DC64	2390	98	0	0	0	0	0	0	9488

**A. Mission Description and Budget Item Justification:** This Program Element (PE) responds to vehicle deficiencies identified during Desert Storm, continues technical system upgrades, and addresses needed evolutionary enhancements to tracked combat (Abrams and Bradley) and tactical (Bradley Fire Support (FIST)) vehicles. This PE provides combat effectiveness and Operating and Support (O&S) cost reduction enhancements for the Abrams Tank through a series of product improvements to the current M1A1 and M1A2 vehicles. Additional improvements allow the M1A2 System Enhancement Package (SEP) tank to operate effectively with the M2A3 Bradley. This PE also addresses future product improvements to the M2A3, and the Abrams tank fleet. Common Digitization (CD) efforts will work towards the resolution of common digitization concerns that impact all current and future Ground Combat Support Systems (GCSS). Included are Real Time Common Operating Environment (RTCOE) Expansion, and Abrams/Bradley Objective Integrated Command, Control and Communication (IC3) Program. These systems support the Legacy transition path of the Transformation Campaign Plan.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203735A - Combat Vehicle Improvement Programs**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	100575	195602	34593
Appropriated Value	101523	167941	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-1492	0
b. SBIR/STTR	-2992	0	0
c. Omnibus or Other Above Threshold Reprogrammings	0	0	0
d. Below Threshold Reprogramming	-1913	0	0
e. Rescissions	-929	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	19872
Current Budget Submit (FY 2003 PB )	95689	166449	54465

**Change Summary Explanation:**

FY01 funds reprogrammed to higher priority requirements.  
 FY03 Abrams program increased to accelerate the Abrams -Crusader Common Engine (ACCE) program.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203735A - Combat Vehicle Improvement Programs</b>						PROJECT <b>330</b>		
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
330 ABRAMS TANK IMPROVE PROG	76687	166136	54465	23798	16291	13112	13328	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project funds improvements to the Abrams Main Battle Tank (M1 series). The Abrams mission is to close with and destroy enemy forces on the integrated battlefield using firepower, maneuver, and shock effect. The M1A2 was the Army's first fully digital ground combat system developed under this project. It was succeeded by the M1A2 SEP, which is the current production model. SEP refers to a System Enhancement Package which upgrades the M1A2's computer systems and its night vision capabilities. The SEP tank has better microprocessors, color flat panel displays, more memory capacity, better Soldier-Machine Interface (SMI), improved thermal imaging capabilities, and a new open operating system designed to run the Army's Common Operating Environment (ACOE) software [funded in PE 0203758A]. Post SEP development efforts are focusing on improvements yielding significant life cycle cost reductions or survivability enhancements. The Abrams-Crusader Common Engine (ACCE) program, which was awarded in September 2000, is the most significant of these efforts. The Abrams – Crusader Common Engine (ACCE) is a critical cornerstone in the Army's (Abrams) Recapitalization Program. All M1A2SEP tanks will be equipped with the ACCE. The objective is a lighter, more reliable, more fuel efficient, and easier-to-repair engine. The ACCE program will yield the greatest return on investment by significantly reducing both the Operations and Support (O&S) burden and the armored forces logistics footprint. This system supports the Legacy transition path of the Army Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 9357 Continued M1A2 SEP Live Fire and Survivability Test, including live fire shots, simulation and purchase of system support package
- 964 Provided Government Support
- 54982 Continued Abrams -Crusader Common Engine (ACCE) Program
- 2305 Continued redesign of turret and hull network boxes and built-in test embedded diagnostic program for the M1A1 fleet
- 2722 Continued lightweight vehicle track development
- 6357 System Technical Support (STS) for the Abrams program

Total 76687

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203735A - Combat Vehicle Improvement Programs**

PROJECT

**330****FY 2002 Planned Program**

- 163141 Abrams-Crusader Common Engine (ACCE) Program
- 1400 Abrams Legacy Fleet Embedded Diagnostics
- 1400 Lightweight Track Improvement
- 195 Abrams M1A2 SEP Live Fire and Survivability Test

Total 166136

**FY 2003 Planned Program**

- 13600 M1A2 SEP Live Fire and Survivability Test
- 500 Vehicle Integrated Defense System (VIDS) (M1A1)
- 34165 Abrams-Crusader Common Engine (ACCE) Program
- 6200 System Technical Support (STS) to address Abrams Continuing Electronic Obsolescence Issues

Total 54465

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203735A - Combat Vehicle Improvement Programs**

PROJECT  
**330**

<u>B. Other Program Funding Summary</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
Abrams Upgrade Program (GA0750)	462916	586137	376486	96891	0	0	0	0	5468055
Abrams Vehicle Modification (GA0700)	55476	81216	191413	531102	575178	550725	479016	1993900	4487671
M1A1D Retrofit (GA0720)	1883	11566	0	0	0	0	0	0	13449
System Enhancement Pgm: SEP M1A2 (GA0730)	58111	99357	123915	163415	194176	314805	366572	386518	1706869
M1A2 Training Devices (GB1302)	10407	11732	12061	12866	5784	0	0	0	61212
Training Device Mod (GA5208)	5282	5506	5504	5805	3351	3415	3478	83000	117969
Initial Spares (GE0161)	14671	23390	9952	11911	12125	12344	12564	113886	269888
PE 0603854A (D505)*	70000	54100	16500	0	0	0	0	0	154807

FY01 funds reprogrammed to higher priority requirements.

**C. Acquisition Strategy:** Honeywell is the prime contractor for the ACCE development program. General Dynamics Land Systems Division (GDLS) is the prime contractor for the vehicle integration effort.

<u>D. Schedule Profile</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Complete M1A2 SEP Live Fire Testing			4Q				
Award ACCE - GDLS Integration Contract	4Q						
ACCE Engine PDR	3Q						
ACCE Engine CDR	4Q						
GDLS Integration PDR		1Q					
GDLS Integration CDR		2Q					
First Engine To Test		3Q					
ACCE In Vehicle Testing			2Q				
Engine LRIP Contract Award			3Q				
Complete Abrams -Crusader Common Engine (ACCE) Contract				2Q			

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203735A - Combat Vehicle Improvement Programs**

**PROJECT**  
**330**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Prior Contracts	Various	Various	618099	0		0		0		0	618099	618099
b . Abrams-Crusader Common Engine (ACCE)	C-CPAF	Honeywell International Phoenix, AZ	0	29052	4Q	116141	4Q	15038	4Q	0	160231	221665
c . ACCE - GDLS Integration	SS-CPFFF	General Dynamics Sterling Heights, MI	0	25930	4Q	47000	4Q	19127	4Q	0	92057	92070
d . BCIS Integration	SS-CPFF	General Dynamics Sterling Heights, MI	3230	0		0		0		0	3230	6275
e . Other Contracts	Various	Various	12801	9079	1-4Q	1400	1-4Q	6700	1-4Q	0	29980	0
<b>Subtotal:</b>			634130	64061		164541		40865		0	903597	938109

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203735A - Combat Vehicle Improvement Programs**

**PROJECT**  
**330**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Gov't Support	MIPR	Various	46033	965	1-4Q	0		0		0	46998	0
b . Embedded Diagnostics	MIPR	Various	13299	2305	1-4Q	1400	1-4Q	0		0	17004	0
Subtotal:			59332	3270		1400		0		0	64002	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Various Test Sites for Live Fire Testing	MIPR	Various	46245	9356	1-4Q	195	1-4Q	13600	1-4Q	0	69396	0
Subtotal:			46245	9356		195		13600		0	69396	0

# ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203735A - Combat Vehicle Improvement Programs</b>	PROJECT <b>330</b>
--------------------------------------------------------------	------------------------------------------------------------------------------	-----------------------

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:												

--	--	--	--	--	--	--	--	--	--	--	--	--

Project Total Cost:			739707	76687		166136		54465		0	1036995	938109
---------------------	--	--	--------	-------	--	--------	--	-------	--	---	---------	--------

--	--	--	--	--	--	--	--	--	--	--	--	--



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0203740A - Maneuver Control System</b>						<b>PROJECT</b> <b>484</b>		
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
484      MANEUVER CONTROL SYSTEM (MCS)	47071	39883	44444	31956	17644	10305	9561	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program element funds the evolutionary development, integration and testing of the Maneuver Control System (MCS). Project satisfies an urgent need for the efficient command and control (C2) of tactical operations on the battlefield. MCS is the Army's tactical C2 system used in command posts from corps to battalion to provide automated C2 for the commander and staff at and between echelons (i.e., Force Level Control). MCS is an essential component of the Army Battle Command System (ABCS) and provides critical coordination among Battlefield Functional Areas (BFAs) within each echelon. The primary component of Force Level Control is MCS's provision of the Common Tactical Picture (CTP). The CTP depicts information provided by all the Battlefield Functional Areas (BFAs) and includes a Situation Map (SITMAP) using Defense Mapping Agency data to display friendly and enemy unit locations, control measures (e.g., boundaries, phase lines, etc.), Intelligence and Electronic Warfare graphics, Fire Support plans, combat service support location information, air corridors and air defense weapons control information.

MCS software is based on the Defense Information Systems Agency (DISA) Common Operating Environment (COE) standard architecture with applications to automate C2 operations. The MCS Block IV software uses the Joint Mapping Tool Kit (JMTK), a Defense Information Infrastructure Common Operating Environment (DII COE) product, for terrain analysis, planning and SITMAP graphical displays. The Task Organization (TO) tool provides the commander and staff a means of organizing (graphically and textually) tactical Army units by echelon. Unit commanders and their staffs can quickly and efficiently prepare and disseminate combat orders with MCS's automated Operations Order (OPORD) generating tool. MCS report displays provide resource information roll-ups on all battlefield units. MCS supports battlefield situation displays for all ATCCS BFAs. MCS provides the Global Command and Control System - Army (GCCS-A) the Army "ground track" segment of the joint tactical common picture.

This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 43304      Continued MCS Block IV software development and support
- 2401      Planned and participated in test events, and conducted data collection and analysis
- 1366      Conducted ABCS System Engineering and Integration

Total 47071

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203740A - Maneuver Control System**

PROJECT  
**484**

**FY 2002 Planned Program**

- 35533 Conduct MCS Block IV and Block V software development and support
- 4350 Plan and participate in test events, and prepare for the MCS Initial Test & Evaluation (IOT&E)

Total 39883

**FY 2003 Planned Program**

- 35244 Complete MCS Block IV development and continue MCS Block V software development and support
- 1000 MCS test activities in support of ABCS
- 8200 Conduct MCS IOT&E

Total 44444

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	48454	40231	12957
Appropriated Value	48910	40231	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-348	0
b. SBIR/STTR	-1319	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-448	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	31487
Current Budget Submit (FY 2003 PB)	47143	39883	44444

Funding: FY 2003 (+31487) Increase for continued testing and MCS software development under planned contract extension

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203740A - Maneuver Control System**

PROJECT  
**484**

**C. Other Program Funding Summary**

	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
BA9320 - Maneuver Control System (MCS)	30571	5397	7584	30003	42506	17223	26616	Continue	Continue
BS9710 - MCS Spares	0	493	3023	1384	237	1407	1905	Continue	Continue
BZ9962 - Standardized Integrated Command Post System (SICPS) for MCS	0	8041	0	13502	9474	22153	13530	Continue	Continue

**D. Acquisition Strategy:** The MCS acquisition strategy is based on modular development of application software, integrated with the common system software, hosted on the procured commercial off-the-shelf Common Hardware/ Software (CHS) computers and peripheral hardware. MCS will follow a development process that is a prioritized blocking approach for software development. Software capabilities will be developed and delivered in blocks over time with the intent of supporting warfighter tactical and training requirements. Block IV will provide the minimum essential operational capability required to set and maintain the conditions for success in the close fight. Block IV is also the essential threshold level of functionality required for the MCS IOT&E. Block V will deliver the capability to fully synchronize the battlefield framework (close, deep, rear, security and reserve). Subsequent blocks are planned to be competitively awarded and will provide the desired operational capabilities consistent with the future operational environment in a transformed US Army. The MCS Block IV system will consist of two CHS components, each providing a combination of software capabilities. The two components are the MCS-Heavy box and the MCS-Light box. Together, those components provide all of the minimum essential capabilities to support the functions of Battle Command at battalion and above level maneuver units. MCS will also integrate its CHS components into the Standardized Integrated Command Post System (SICPS) shelters.

**E. Schedule Profile**

	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Participation in ABCS 6.X test events	1-4Q						
Participation in FBCB2 Field Test 3	2Q						
Participation in FBCB2 Field Test 4		1Q					
Participation in DCX-II		1Q					
MCS Block IV Software Segment Acceptance Test		3Q					
Participation in FBCB2 Field Test 5		3-4Q					
Complete MCS Block IV Initial Operational Test & Evaluation			1Q				

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203740A - Maneuver Control System**

PROJECT  
**484**

<b>E. Schedule Profile (continued)</b>	<b>FY 2001</b>	<b>FY 2002</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>
Participation in ABCS 7.0, 8.0, etc. test events		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
MCS Milestone III Decision			3Q				
Initial Operational Capability			4Q				
Complete Block V Operational Assessment/Operational Test				3Q			
Evolving Software Upgrades				2-4Q	1-4Q	1-4Q	1-4Q

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203740A - Maneuver Control System**

**PROJECT**  
**484**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MCS Software Development	C/CPAF	Lockheed Martin Corp., Tinton Falls, NJ	72286	32004	1-4Q	24906	1-3Q	26447	1-3Q	Continue	Continue	0
b . Misc Contracts	Various	Various	6748	2308	1-2Q	2287	1-2Q	2524	1-2Q	Continue	Continue	0
c . Technical Support	MIPR	CECOM, NJ	4510	3334	1-2Q	4500	1-2Q	2200	1-2Q	Continue	Continue	0
d . Technical Support	In House	PM ATCCS, NJ	4775	1777	1-4Q	1875	1-4Q	1969	1-4Q	Continue	Continue	0
e . PSE H/W & S/W	Various	Various	1341	614	3-4Q	200	2Q	250	2Q	Continue	Continue	0
f . MITRE System Engineering	CPFF	MITRE Corp., Eatontown, NJ	3665	1935	2Q	930	1Q	977	1Q	Continue	Continue	0
g . ABCS SE&I	MIPR	PEO C3S, NJ	464	1366	2Q	0		0		0	1830	0
Subtotal:			93789	43338		34698		34367		Continue	Continue	0

Remarks: MCS software development contract will extend to FY04 in order to complete Block V requirements of reblocked MCS ORD.

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203740A - Maneuver Control System**

**PROJECT**  
**484**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Misc Support	In House	PM ATCCS, NJ	1811	335	1-4Q	352	1-4Q	370	1-4Q	Continue	Continue	0
b . Misc Contracts	Various	Various	1122	591	2-3Q	0		0		0	1713	0
Subtotal:			2933	926		352		370		Continue	Continue	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . OGA	MIPR	Various	400	470	1-3Q	450	1-2Q	300	1-2Q	Continue	Continue	0
b . Misc Contracts	Various	Various	1347	835	1-4Q	600	1-2Q	400	1-2Q	Continue	Continue	0
c . Operational Test/Planning	MIPR	Various	442	1096	2-4Q	3300	1-4Q	8500	1-2Q	Continue	Continue	0
Subtotal:			2189	2401		4350		9200		Continue	Continue	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203740A - Maneuver Control System**

**PROJECT**  
**484**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Office Mgmt	In House	PM ATCCS, NJ	0	406	1-4Q	483	1-4Q	507	1-4Q	Continue	Continue	0
Subtotal:			0	406		483		507		Continue	Continue	0
Project Total Cost:			98911	47071		39883		44444		Continue	Continue	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product Improvement Program**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	97654	145169	201566	132729	111275	82227	8947	Continuing	Continuing
028 GUARDRAIL COMMON SENS/AERIAL COMMON SENS (TIARA)	13162	14531	49748	78305	87806	74501	8947	Continuing	Continuing
179 CH-47D PRODUCT IMPRV	0	503	3101	0	0	0	0	0	3604
430 IMPR CARGO HELICOPTER	38711	18449	3482	0	0	0	0	0	111607
504 BLACK HAWK RECAPITALIZATION/MODERNIZATION	28760	71837	99061	54424	23469	7726	0	0	294824
508 APACHE 2ND GENERATION FLIR	17021	39849	46174	0	0	0	0	40000	174852

**A. Mission Description and Budget Item Justification:** This PE provides for development of modifications and improvements for the Guardrail Common Sensor/Aerial Common Sensor, the Improved Cargo Helicopter (ICH), the UH-60A/L Black Hawk Recapitalization/Modernization, and the Apache 2nd Generation Forward Looking Infrared (FLIR).



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product Improvement Program**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	106831	143631	95678
Appropriated Value	107829	146431	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-1262	0
b. SBIR / STTR	-1176	0	0
c. Omnibus or Other Above Threshold Reductions	-9613	0	0
d. Below Threshold Reprogramming	1603	0	0
e. Rescissions	-989	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	105888
Current Budget Submit (FY 2003 PB )	97654	145169	201566

FY03 Breakdown of 105,888 increase is as follows:  
 028 increase 1044 supports Guardrail Common Sensor/Aerial Common Sensor  
 179 increase 3101 Supports CH-47 Product Improvement.  
 430 increase 3385 Supports CH-47, Improved Cargo Helicopter.  
 504 increase 60667 Supports UH-60M upgrade program  
 508 increase 37691 Supports Apache Second Generation FLIR Development

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0203744A - Aircraft Modifications/Product Improvement Program</b>						<b>PROJECT</b> <b>028</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
028	GUARDRAIL COMMON SENS/AERIAL COMMON SENS (TIARA)	13162	14531	49748	78305	87806	74501	8947	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Aerial Common Sensor (ACS) and the Guardrail Common Sensor (GRCS) are airborne intelligence collection systems required to provide critical support to U.S.-based early entry, forward deployed forces, and to support the Army's seamless intelligence architecture. ACS is the objective force system that will satisfy the Army's critical need for a responsive worldwide, self-deployable, airborne reconnaissance, intelligence, surveillance and target acquisition (RISTA) capability that can immediately begin operations when arriving in theatre. The ACS will merge the current Airborne Reconnaissance Low (ARL) and Guardrail Common Sensor (GRCS) capabilities into a single airborne system capable of providing a rapid response information dominance capability dedicated to the Land Component Commander's need for precision real-time geolocation of the enemy on the objective force battlefield. ACS will be composed of a family of modular sensors mounted on an airborne platform that is capable of operating independently or remotely via SATCOM or line-of-sight datalinks from a ground processor. ACS will be Joint Airborne SIGINT Architecture (JASA) and Unified Cryptologic Architecture (UCA) compliant and be interoperable within the open Network centric C4ISR architecture in order to support all combat and combat support functions through the emerging DOD "global infosphere". The primary mission will be standoff Signals Intelligence (SIGINT) collection, with a secondary mission of overflight Imagery Intelligence (IMINT). ACS ground functionality will be an element of the Distributed Common Ground Station-ARMY (DCGS-A). ACS is primarily targeted against threat maneuver forces, logistic areas, rocket and artillery forces, air defense artillery, and command control communications and intelligence nodes (C3I). ACS will satisfy unique Army/Land Force Commander Intelligence, Surveillance and Reconnaissance (ISR) and targeting requirements, and those of the Land Force Component of Joint and Combined Task Forces (JTF and CTF) across the spectrum of Operations.

This project is assessing Horizontal Technology Integration (HTI) candidates. A key consideration is the affordability of these subsystems. The National Security Agency's Defense Cryptologic Program (DCP) provides funding to support enhanced SIGINT capabilities.

FY02 funding completes the Concept Exploration (CE) Phase that identifies airborne platform recommendations which best support the multi-mission role of ACS, sensor recommendations, cost performance analysis, performance specifications and development of modeling and simulations tools for evaluating performance and proposals. Funding also supports the decision review and entrance into the Component Advanced Development (CAD) Phase leading to a MS B decision in FY03. Efforts to maintain currency of the GRCS fielded systems with the modifications of current systems software and hardware baseline to handle new signals of interest are also supported. FY03 funding will be used to continue development and risk reduction efforts including Prime Mission Equipment (PME) advanced development and integration efforts. Funding continues CAD Phase, supports Milestone B, and supports entry into System Development and Demonstration (SDD) Phase. FY03 funding supports a Total Ownership Cost Reduction (TOCR) initiative to replace the current GRCS Airborne Data Links with the commercial based Tactical Airborne Data Link. FY03 funding also completes the development of Interface Control Documents (ICD)s and software modifications to allow GRCS systems to collect and exploit new, "non-traditional" signals. ACS supports the Objective transition path of the Transformation Campaign Plan.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203744A - Aircraft Modifications/Product  
Improvement Program**

PROJECT

**028****FY 2001 Accomplishments:**

- 3210 Continued initial phase of ACS concept exploration agreements.
- 3594 Completed initial operational performance and evaluation models for ACS.
- 2695 Awarded contract(s) for Guardrail Common Sensor (GRCS) fielded systems enhancements; upgrade data transport systems and modify system software to incorporate additional signals of interest. Developed implementation plan with an Interface Control Document (ICD) for system upgrades.
- 2000 Provided Tactical Information Broadcast Service (TIBS) capability in GRCS System 2.
- 1663 Modeling and Program Office support.

Total 13162

**FY 2002 Planned Program**

- 2400 Concept Exploration (CE) agreements/Component Advanced Development (CAD) bridge contract to support Milestone process.
- 360 Component Advanced Development (CAD) performance specification analysis and source selection.
- 8357 ACS CAD contract award(s) will transition virtual system concept and vet it into a system architecture and relevant integration environment.
- 1000 Complete the prototype efforts required to validate Data Transport Systems performance capabilities.
- 2414 Modeling, Program office, and Decision Review support for entry into CAD.

Total 14531

**FY 2003 Planned Program**

- 43899 Complete ACS CAD contract(s) and support MS B process.
- 420 System Integration (SI) Phase performance specification analysis and source selection.
- 1650 Continue contract(s) for fielded systems enhancements including efforts to productize Defense Cryptologic Program Technologies for GRCS.
- 1042 Develop an Airborne Tactical Common Data Link (TCDL) for GRCS under a Total Ownership Cost Reduction (TOCR) initiative.
- 2737 Program office and Milestone B Decision support for entry into System Integration (SI) of SDD Phase.

Total 49748

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product Improvement Program**

**PROJECT**  
**028**

<u><b>B. Other Program Funding Summary</b></u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
Defense Cryptologic Program (DCP)	12304	22385	25590	24205	23055	21683	23735	Continuing	Continuing
Joint Airborne SIGINT family (from ASC/RAJ)	3250	0	0	0	0	0	0	0	4250
0305206/DK98 Tactical Reconnaissance	0	4903	4882	4832	5182	5473	5561	Continuing	Continuing
A02005 Aerial Common Sensor- Aircraft Procurement, Army	0	0	0	0	0	0	89289	Continuing	Continuing

FY02-FY07 DCP provides funding for the development of ACS technologies and technologies needed to maintain relevancy of GRCS and other legacy systems. Tactical Reconnaissance funds MASINT/IMINT technologies that will be integrated into ACS during SDD Phase.

**C. Acquisition Strategy:** The Aerial Common Sensor Concept Exploration Agreements were awarded on a competitive basis using Other Transaction Agreements and shared contractor investment. Requirements are to analyze/recommend an architecture to include an airframe that integrates Signals Intelligence (SIGINT) and non-SIGINT suites, e.g. Moving Target Indicator (MTI)/Synthetic Aperture Radar (SAR), Electro Optic/Infrared (EO/IR), etc. The contractors will be required to provide the integration analysis, modeling and simulation packages and a proposed airframe for a total system recommendation. Following evaluation of the recommendations, new limited competitive contract(s) will be awarded in FY2002 to begin risk reduction efforts. The contractor(s) will be required to support the program through a milestone approval of the aircraft and sensor suites. The SIGINT payload for ACS could be comprised of scaled SIGINT subsystems being developed by the ASC/RAJ under separate action with additional enhancements being funded under the ACS DCP program. The acquisition strategy for the GRCS upgrades will be through task orders against omnibus contracts that team multiple contractors. The Data Link upgrade for GRCS will be awarded through USAF.

<u><b>D. Schedule Profile</b></u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
ACS Concept Exploration Agreements	1-4Q	1-2Q					
GRCS upgrade contracts (to include FY 03 TOCR initiative)	3-4Q	1-4Q	1-4Q				
Decision Review for ACS Component Advanced Development (CAD)		1Q					
ACS CAD Contract(s)		2-4Q	1-4Q				
Field TIBS capability		2-4Q					

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product**  
**Improvement Program**

**PROJECT**  
**028**

<b>D. Schedule Profile (continued)</b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
ACS Milestone B Decision			3Q				
ACS SI Contract				1-4Q	1-4Q	1-2Q	
Field software modifications			2-4Q				
Flight test upgrades			3-4Q				
Conduct ACS SI Demonstration						1Q	
ACS System Demonstration (SD) Phase Decision Review						3Q	
ACS SD Contract						3-4Q	1-4Q
ACS SD DT&E							4Q

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product Improvement Program**

**PROJECT**  
**028**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Concept Evaluation Agreement	C-FP	Raytheon; Greenville, TX	875	1110	2Q	800	1Q	0		0	2785	2785
b . Concept Evaluation Agreement	C-FP	Lockheed Martin; Palmdale, CA	1535	1100	1-2Q	800	1Q	0		0	3435	3435
c . Concept Evaluation Agreement	C-FP	Northrup Grumman, Baltimore, MD	1400	1000	1Q	800	1Q	0		0	3200	3200
d . Data Transport Contract (Includes FY03 TOCR initiative)	SS-CPFF	L3Comm, Salt Lake City, Utah	0	2000	3Q	1000	2Q	1042	1Q	0	4042	4042
e . Omnibus contract	SS-FP	TRW, Sunnyvale, CA.	0	695	4Q	0		1650	1Q	0	2345	2345
f . TIBS Installation	C-CPFF	Mutiple	0	2000	2Q	0		0		0	2000	2000
g . ACS CAD Contract(s)	C-CPXF	TBD	0	0		8357	2Q	42499	1Q	0	50856	50856
Subtotal:			3810	7905		11757		45191		0	68663	68663

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product Improvement**  
**Program**

**PROJECT**  
**028**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ACS Operational Performance Model	SS-CPFF	Raytheon System Dev. Marlborough, MA	1500	2520	1Q	0		0		0	4020	4020
b . Model Evaluation Support		Multiple	325	1074	1Q	450	1Q	0		0	1849	1849
c . ASARC Support	C-CPFF	CSC, Falls Church, VA	50	160	1Q	60	1Q	100	1Q	Continue	Continue	Continue
Subtotal:			1875	3754		510		100		Continue	Continue	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering Support	C-CPFF	CACI Technologies; Chantilly, VA	600	400	2Q	0		0		0	1000	1000
b . Engineering Support	C-CPFF	Multiple	0	300	2Q	460	1Q	920	1Q	Continue	Continue	Continue
c . AEC Support	C-CPFF	Multiple	0	80	2Q	180	1Q	200	1Q	Continue	Continue	Continue
d . Analysis and Evaluation of CAD Products	TBD	TBD	0	0		0		1200	1Q	0	1200	1200

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>	PROJECT <b>028</b>
--------------------------------------------------------------	---------------------------------------------------------------------------------------------	-----------------------

III. Test and Evaluation (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			600	780		640		2320		Continue	Continue	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management	MIPR	PM, Signals Warfare	171	368	2Q	690	1Q	722	1Q	Continue	Continue	Continue
b . Matrix Support	MIPR	HQ, CECOM	648	355	1-2Q	934	1-2Q	1415	1-2Q	Continue	Continue	Continue
Subtotal:			819	723		1624		2137		Continue	Continue	Continue

Project Total Cost:			7104	13162		14531		49748		Continue	Continue	Continue
---------------------	--	--	------	-------	--	-------	--	-------	--	----------	----------	----------



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>	PROJECT <b>179</b>
--------------------------------------------------------------	---------------------------------------------------------------------------------------------	-----------------------

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
179 CH-47D PRODUCT IMPRV	0	503	3101	0	0	0	0	0	3604

**A. Mission Description and Budget Item Justification:** The CH-47 is a tandem rotor helicopter. This is a joint project with the United Kingdom which utilizes alpha contracting to develop, test, and qualify a Low Maintenance Rotor Hub (LMRH). Successful implementation will reduce the life cycle cost associated with acquiring and operating a rotor system. LMRH will reduce spare parts consumption, increase rotor hub reliability, and will result in a reduction of major parts. This system supports the Legacy-to-Objective transition path of the Transformation Campaign Plan (TCP).

**FY 2002 Planned Program**

- 503 Conduct Flight Test & Evaluation.
- Total 503

**FY 2003 Planned Program**

- 3101 Conduct Fatigue Life Substantiation Testing.
- Total 3101

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>	PROJECT <b>179</b>
--------------------------------------------------------------	---------------------------------------------------------------------------------------------	-----------------------

<u>B. Other Program Funding Summary</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
APA, SSN AA0252, LMRH	0	0	3745	12342	9571	12955	11410	12597	62620

FY03 includes tooling and production preparation.

**C. Acquisition Strategy:** The Low Maintenance Rotor Hub (LMRH) for the CH-47F will be procured for five fiscal years, beginning fiscal year 2004 through fiscal year 2008. Conversion of the CH-47D to LMRH will be accomplished as modernization through spares.

<u>D. Schedule Profile</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Critical Design Review (CDR)		1Q					
Testing		2-4Q	1-4Q				
Production Contract Award				2Q	2Q	2Q	2Q

# ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0203744A - Aircraft Modifications/Product Improvement Program</b>	<b>PROJECT</b> <b>179</b>
---------------------------------------------------------------------	----------------------------------------------------------------------------------------------------	------------------------------

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Developmental Testing - Flt Test	Reimbursable	Various Government	0	0		503	3Q	0		0	503	0
b . Developmental Testing - Fatigue Test	CPFF	Various	0	0		0		3101	2Q	0	3101	0
Subtotal:			0	0		503		3101		0	3604	0

# ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product Improvement**  
**Program**

**PROJECT**  
**179**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0
Project Total Cost:			0	0		503		3101		0	3604	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>	PROJECT <b>430</b>
--------------------------------------------------------------	---------------------------------------------------------------------------------------------	-----------------------

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
430    IMPR CARGO HELICOPTER	38711	18449	3482	0	0	0	0	0	111607

**A. Mission Description and Budget Item Justification:** The Improved Cargo Helicopter (ICH) is a recapitalization program to extend the useful life of the CH-47D Cargo helicopter. This funding will assure heavy lift capability into the 21st century. This program awarded a contract for Engineering Manufacturing Development (EMD) which includes decreasing operation and support costs through vibration reduction/airframe stiffening, incorporating a new electronics/architecture system for compatibility with the digital battlefield and structural modifications as necessary to extend the life of the airframe. This program is the basis for establishing remanufacture, modernization, and upgrade program to meet the readiness needs of the future for heavy lift capability. The ICH Program includes testing of the two engineering development models plus component testing for Live Fire. This system supports the Legacy-to-Objective transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 29930    Continue Engineering Manufacture Development (EMD).
- 1506    Continue in-house and program management administration.
- 5675    Continue Government Test & Evaluation; 2 EMD Models delivered for testing.
- 1600    Total Operating Cost Reduction (TOCR) Initiative.

Total 38711

**FY 2002 Planned Program**

- 14227    Continue Engineering Manufacture Development (EMD).
- 326    Continue in-house and program management administration.
- 3896    Continue Government Test & Evaluation.

Total 18449

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>	PROJECT <b>430</b>
--------------------------------------------------------------	---------------------------------------------------------------------------------------------	-----------------------

**FY 2003 Planned Program**

- 3385 Continue Government Test & Evaluation
- 97 Continue Contract Live Fire Test & Evaluation

Total 3482

<b><u>B. Other Program Funding Summary</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
APA, SSN AA0252/AA0254, CH-47 CARGO HELICOPTER MODS (MYP) (Including Adv Proc)	82261	112727	199553	307123	335076	374052	376219	4095746	5882757

Increase in FY04-07 for recapitalization

**C. Acquisition Strategy:** The ICH will recapitalize an aging fleet and bridge the gap until the development of a follow-on aircraft. This will be achieved in a cost effective manner as the ICH program will be based on a four-pronged approach which will include rebuilding the airframe, recapitalizing dynamic components, improving mission capability, and reducing vibrations to provide for long term O&S cost reductions. There will be two Low Rate Initial Production (LRIP) lots to ramp up full rate production.

<b><u>D. Schedule Profile</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
EMD Contract & Funding Increments	2Q	1Q					
Initial Production Facilitization (IPF)	3Q						
LL Award For LRIP I		1Q					
Initial Oper Test & Eval (IOTE)		2Q					
LRIP I Award			1Q				
LL Award For LRIP 2			1Q				
LRIP 2 Award				2Q			
MS 3					2Q		

**ARMY RDT&E COST ANALYSIS(R-3)**

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product Improvement Program**

**PROJECT**  
**430**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . EMD	CPIF	Various	73569	29930	2Q	14227	1Q	0		0	117726	117098
b . TOCR	CPIF	Various	0	1600	3Q	0		0		0	1600	1600
Subtotal:			73569	31530		14227		0		0	119326	118698

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PMO/OGA	Reimbursable	Various government	9982	1506	3Q	326	2-3Q	0		0	11814	0
Subtotal:			9982	1506		326		0		0	11814	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product Improvement Program**

**PROJECT**  
**430**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DT/OT	Reimbursable	Various government	3784	2875	3Q	2621	1-3Q	3385	1Q	0	12665	0
b . Live Fire Test & Eval	Reimbursable	Contract/Govt	2243	2750	2-3Q	1275	1-3Q	97	1Q	0	6365	0
c . Live Fire Test & Eval	Contract		0	50	2Q	0		0		0	50	0
Subtotal:			6027	5675		3896		3482		0	19080	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . CAMBER/Westar	SS/FP	Huntsville, AL	3901	0		0		0		0	3901	3901
Subtotal:			3901	0		0		0		0	3901	3901

<b>Project Total Cost:</b>			93479	38711		18449		3482		0	154121	122599
----------------------------	--	--	-------	-------	--	-------	--	------	--	---	--------	--------



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>				<b>PE NUMBER AND TITLE</b> <b>0203744A - Aircraft Modifications/Product Improvement Program</b>				<b>PROJECT</b> <b>504</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
504	BLACK HAWK RECAPITALIZATION/MODERNIZATION	28760	71837	99061	54424	23469	7726	0	0	294824

**A. Mission Description and Budget Item Justification:** The UH-60 Black Hawk will serve as the Army's utility helicopter in the Objective Force. It is used for air assault, general support, aeromedical evacuation (MEDEVAC), and command and control in active and reserve component theater, corps, division, and table of distribution and allowances units. The UH-60A entered service in fiscal year 1978 (FY78), and the newer model UH-60L in FY89. The Army continues to procure UH-60L helicopters today. The Army has established a recapitalization goal for its systems of maintaining the fleet's average age at the design half-life or less. The UH-60 was designed for a 20 year service life. The oldest UH-60As are now over 23 years old, and the average age of the UH-60A fleet is 18 years old. The increased operational tempo, coupled with the technological age of the basic airframe, components, and systems, is having an adverse impact on the operational readiness (OR) and operating and support (O&S) costs of the over 1500 aircraft UH-60 fleet. In addition, the UH-60A/L helicopters lack the necessary digital avionics architecture to meet current and future Army and Joint Service interoperability communication requirements. The Army has determined that a recapitalization/upgrade program is required to address these issues. An Operational Requirements Document (ORD) for recapitalization of the Black Hawk fleet was approved by the Joint Requirements Oversight Council in March, 2001. The ORD describes an evolutionary, block approach to transform the utility helicopter force to one that is more deployable, responsive, and less expensive to operate. Block 1 recapitalizes the oldest UH-60A Black Hawks to the UH-60M configuration. The UH-60M selected upgrade includes airframe service life extension, structural improvements, upgrade of the propulsion system (UH-60A T700-GE-700 engine and drive train to UH-60L T700-GE-701C engine and drive train), and a digital cockpit. The UH-60M provides a common platform for the modernized air ambulance MEDEVAC medical mission equipment package (MEP). RDTE funds are required to develop, integrate, test and qualify the UH-60M configuration. This effort supports the Legacy-to-Objective transition path of the Transformation Campaign Plan.

Currently the UH-60 cannot meet Force XXI and Army 2010 and Beyond requirements for operations and support (O&S). Costs must be reduced while reliability and maintainability are improved. The Army entered into a Commercial Operational Support Sharing Initiative (COSSI) Program with the Navy and Goodrich to explore the Integrated Mechanical Diagnostic (IMD) Health Usage Monitoring System (HUMS) concept from the Navy's SH-60 and for the Army's UH-60A. The demonstration will include data collection and analysis to determine which features of an IMD-HUMS/Cockpit Voice/Flight Data Recorder is beneficial to the Army. Based on this analysis the Army will have sufficient data to select the most cost effective subsystem that will then be installed on the UH-60 fleet through the Recapitalization Programs as well as a potential retrofit.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203744A - Aircraft Modifications/Product Improvement Program**

PROJECT

**504**

## FY 2001 Accomplishments:

- 8159 Initiate assessment and design activities required for recapitalization/upgrade of UH-60M airframe, avionics and power plant.
- 3663 Initiate Producibility Engineering and Planning (PEP) to validate production processes and methods.
- 2319 Initiate design and production of tooling required for UH-60M unique processes.
- 2484 Initiate test article induction, preparation/teardown and fabrication (4 test articles: UH-60A to UH-60M, L to M, A to MEDEVAC, new production UH-60M) to include Airframe and System Requirements Review and Airframe Preliminary Design Review.
- 6636 Test planning and execution - Initiate plans; prepare and conduct Early User Demonstration #1; begin software integration at Systems Integration Lab (SIL); Qualification of component/subsystems; live fire planning & begin component live fire test.
- 221 Begin implementation of Continuous Acquisition and Life-Cycle Support (CALs)/Contractor Integrated Technical Information System (CITIS) and delivery of technical drawings and Interface Control Documents (ICDs).
- 140 Deliver initial Depot Partnership Study Report.
- 5138 Continue software (SW) development - update software requirements specifications and multiplex interface control documents and prepare software design descriptions.

Total 28760

## FY 2002 Planned Program

- 15684 Continue design of airframe, avionics and powerplant to include completion of airframe Critical Design Review.
- 7555 Continue software (SW) development to include failure modes and effects criticality analysis and preliminary software design descriptions. Continue development and qualification testing of mission critical computer resources.
- 12764 Continue build and delivery of four test articles to support Development Testing.
- 2086 Preparation of training documentation for Logistics Demonstration Familiarization Course, Government Test Pilot Familiarization Course and Test Data Collection Training Course.
- 12572 Initiate Development Testing; complete component live fire phase 1.
- 462 Deliver CALs/CITIS technical drawings and interface control documentation updates to the allocated baseline specifications.
- 408 Continue Depot Partnership Study data collection for midyear update to reflect input from test article build.
- 6306 Continue Producibility Engineering and Planning (PEP) as well as manufacturing planning and control.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203744A - Aircraft Modifications/Product  
Improvement Program**

PROJECT

**504**

## FY 2002 Planned Program (Continued)

- 1026 Complete the COSSI for IMD HUMS on the UH-60A
- 12974 Initiate and complete delta design and testing of the IMD HUMS for the UH-60L. Installations of IMD HUMS on 8 demonstrator air craft as well as data collection for 8 air craft over 2 year period.

Total 71837

## FY 2003 Planned Program

- 24221 Continue and deliver ICDs, product drawings and detailed specifications for hardware/software.
- 6025 Continue software (SW) development - update software requirements specifications and multiplex interface control documents and prepare software design descriptions.
- 7778 Continue Producibility Engineering and Planning (PEP) as well as manufacturing planning and control.
- 28219 Continue build and delivery of four test articles to support Development Testing.
- 3434 Continue training course preparation and conduct Development Test Pilot Course.
- 581 Prepare update and final report for Depot Partnership Study.
- 571 Maintain CALS/CITIS and delivery of ICDs.
- 28232 Test planning and execution - continue plans, contractor ground tests and instrumentation for flight test; Initiate software qualification, air vehicle ground and flight tests and contractor support to government testing.

Total 99061

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product**  
**Improvement Program**

**PROJECT**  
**504**

<u><b>B. Other Program Funding Summary</b></u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
AA0492 UH-60 MODS	25405	68010	41863	179953	239569	461293	436722	Continuing	Continuing

**C. Acquisition Strategy:** The UH-60 Black Hawk will serve as the Army's utility helicopter in the Objective Force. The recapitalization/upgrade of the legacy UH-60 fleet for the interim/objective force will be accomplished using an evolutionary, block approach to transform the system. The Block 1 program will selectively upgrade the UH-60A/L fleet to the UH-60M configuration. This includes airframe structural improvements, a propulsion upgrade, and a digital cockpit that will meet lift, range, survivability, and interoperability requirements while decreasing O&S costs. This will extend the useful life of these aircraft another 20 years, or through the FY25 time frame. These improvements will be accomplished through integration of existing technologies, by upgrading the UH-60A propulsion system to that currently in the UH-60L, and by adding the UH-60Q advanced MEDEVAC medical equipment package (MEP) to the air ambulance fleet. This program addresses current UH-60 fleet aging problems such as decreasing operational readiness (OR) and increasing O&S costs, including all top-ten cost drivers, and provides a common, modernized platform for the UH-60 utility and MEDEVAC fleet of the future. The program will be executed over four phases: pre-System Development/Demonstration Phase (FY00-01), System Development/Demonstration Phase (FY01-06), Production/Readiness Phase (FY04-27), and Operations and Sustainment Phase (FY05-FY48).

The objective of the Integrated Mechanical Diagnostic - Health Usage Monitoring System (IMD-HUMS) program is to design, develop, produce and demonstrate a IMD-HUMS with a Cockpit Voice/Flight Data Recorder that will aide in fulfilling the requirements as specified in Operational Requirements Document numbered 05028. The IMD-HUMS will provide the capability to simultaneously acquire, store, and process aircraft structural, engine, drive train, exceedances usage, electrical data and voice interchanges. The data collected by the IMD-HUMS will be used for crash investigations and scheduled and unscheduled maintenance. The strategy for acquiring this modification is a block effort. Block 1 is to design, install and demonstrate the IMD-HUMS on one UH-60L to prove out functionality. The Block 2 effort will be to retrofit 7 additional aircraft and begin a demonstration. Demonstration results will be used for a Milestone C decision.

<u><b>D. Schedule Profile</b></u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Depot Partnership Study	1-4Q	1-4Q	1-4Q	1Q			
Milestone B	2Q						
Finish COSSI Effort		2Q					
Initiate and complete integration and demonstration of HUMS on UH-60L.		3-4Q					
Installation for demonstration of HUMS.		4Q	1Q				
Integration and Qualification Contract Award	3Q						

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product**  
**Improvement Program**

**PROJECT**  
**504**

<b>D. Schedule Profile (continued)</b>	<b>FY 2001</b>	<b>FY 2002</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>
System Critical Design Review			3Q				
Test Article Delivery for Testing			4Q	1Q			
Depot Partnership Prove-out				3-4Q	1-4Q	1-4Q	1Q
Milestone C				2Q			
LRIP Lot I Contract Award				3Q			
LRIP Lot 2 Contract Award					1Q		
Full Rate Production IPR						2Q	
First Unit Equipped (FUE)						4Q	

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product Improvement**  
**Program**

**PROJECT**  
**504**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Design, Integration & Qualification Contract	SS/CPAF	Sikorsky Aircraft Co 30 Moffitt Street Stratford, CT 06601	8381	23375	3Q	50004	2Q	87867	2Q	56270	225897	0
b . Development Support - Organic	MIPR	UH PMO/matrix	872	1544	1-4Q	3911	1-4Q	3340	1-4Q	4419	14086	0
c . Development Support - Contractor	C/FP	O2K Contractors	0	1893	1-4Q	2081	1-3Q	451	1-3Q	2779	7204	0
d . Development Support - Organic	MIPR	Aviation Applied Tech Directorate (AATD) Matrix	0	0		1026	2Q	0		0	1026	0
e . Development Support - Contractor	CPAF	Goodrich, 100 Panton Road, Vergennes, Vermont 05491	0	0		12974	3Q	0		0	12974	0
Subtotal:			9253	26812		69996		91658		63468	261187	0

Remarks: Adjusted FY01 to actuals. Adjusted FY02 to reflect current plan.

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development**

**0203744A - Aircraft Modifications/Product Improvement Program**

**504**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Cost Analysis Support	MIPR	AMCOM Matrix	160	210	1-4Q	80	1-4Q	0		0	450	0
Subtotal:			160	210		80		0		0	450	0

Remarks: Increased FY02 cost to reflect current plan.

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Planning, Test and Evaluation	MIPR	Various Activities	45	697	1-4Q	227	1-4Q	4406	1-4Q	6623	11998	0
Subtotal:			45	697		227		4406		6623	11998	0

Remarks: Increased FY01 cost to actuals.

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product Improvement Program**

**PROJECT**  
**504**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Support - Organic	MIPR	UH PMO/matrix	89	708	1-4Q	1315	1-4Q	2030	1-4Q	10567	14709	0
b . PM Support - Contract	C/FP	O2K Contractor	0	333	1-3Q	219	1-3Q	967	1-3Q	4961	6480	0
Subtotal:			89	1041		1534		2997		15528	21189	0

Remarks: Adjusted FY01 costs to actuals. Adjusted FY02 costs to current spending plan.

Project Total Cost:			9547	28760		71837		99061		85619	294824	0
---------------------	--	--	------	-------	--	-------	--	-------	--	-------	--------	---



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>				PROJECT <b>508</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
508 APACHE 2ND GENERATION FLIR	17021	39849	46174	0	0	0	0	40000	174852

**A. Mission Description and Budget Item Justification:** Apache Second Generation Forward Looking Infrared (FLIR) is a U.S. Army program to develop, test, integrate and produce a Second Generation FLIR (SGF) for the Army's entire fleet of AH-64A and AH-64D aircraft. The FLIR system enables for pilotage of the aircraft and the engagement of targets during night operations and adverse weather conditions. The Apache SGF project will leverage technology already invested in electronics, sensors and optics to provide the best sensor available at the lowest cost. The SGF enhancements, over the present Apache FLIR, include increased range for detection, recognition and identification of targets; higher resolution and improved sensitivity for improved safety and pilotage performance, especially in adverse weather; increased capability to identify friend versus foe during hostilities; and increased reliability with a corresponding reduction in O&S costs. These enhancements will improve the overall warfighting capability of the Apache aircraft by: 1) significantly enhancing the pilot's visibility and safety while improving target designation and acquisition; 2) providing improved clarity and ability to fly and navigate using advanced FLIR imagery; 3) improving aircraft survivability with increased standoff ranges; and 4) reducing the risk of fratricide. This system supports the Legacy ("L") transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 9968 Continue Contract for 2nd Generation FLIR Development/PDR/CDR/First Prototype Delivery/T&E.
- 5000 Night Vision & Electronics Sensors Directorate (NVESD), Standard Advanced Dewar Assembly 1 (SADA1) Contract/Support
- 113 Test and Evaluation - Government.
- 1940 Continue In-house and Program Management Administration.

Total 17021

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203744A - Aircraft Modifications/Product  
Improvement Program**

PROJECT

**508****FY 2002 Planned Program**

- 36800 Continue Contract for 2nd Generation FLIR Development/Prototype Deliveries/T&E.
- 700 NVESD SADAI Contract/Support
- 1153 Test and Evaluation - Government (Qualification Testing - Air Worthiness Release - Operational Testing - Simulation).
- 1196 Continue in-house and Program Management Administration.

Total 39849

**FY 2003 Planned Program**

- 25400 Complete Contract for 2nd Generation FLIR Development/Prototype Deliveries/T&E.
- 500 Complete NVESD SADAI Contract/Support
- 3300 Apache/Comanche HTI Helmet Contract.
- 15991 Complete Test and Evaluation - Government(Qualification Testing - Air Worthiness Release - Operational Testing - Simulation).
- 983 Continue In-house and Program Management Administration.

Total 46174

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>	PROJECT <b>508</b>
--------------------------------------------------------------	---------------------------------------------------------------------------------------------	-----------------------

<b>B. Other Program Funding Summary</b>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
APA, BA 12,: AA6606, AA6607, AA6608; BA 13: AA0978	803664	950362	992872	881253	562289	627207	456277	2126883	8250146

**C. Acquisition Strategy:** A cost plus incentive fee (CPIF) type contract was awarded to Team Apache Systems (TAS) on 18 Oct 00. Six prototypes will be designed, developed and tested. The program will culminate with qualification flight testing on the Apache Attack Helicopter. The design will be compatible with both the A and D model Apache helicopters.

<b>D. Schedule Profile</b>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
SSEB							
Receive Proposals							
Contract Award	1Q						
PDR/CDR	2-4Q						
Prototype Deliveries		3-4Q					
Qual Testing		3-4Q	1-2Q				
Air Worthiness Release		4Q					
Flight Testing			1-2Q				
Follow-up Testing			2Q				

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203744A - Aircraft Modifications/Product Improvement**  
**Program**

**PROJECT**  
**508**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contract -- 2nd Gen FLIR (SGF)	C, CPIF	Team Apache Systems (TAS), Orlando, FL	24008	9968	1Q	36800	1Q	25400	1Q	0	96176	96176
b . SADA1 Contract/Spt	SS, CPIF	DRS Infrared Tech, L.D.; CECOM, N.J	4400	5000	3Q	700	1Q	500	1Q	0	10600	10600
c . Apache/Comanche HTI Helmet	CPIF	TAS, Orlando, FL	0	0		0		3300	1Q	0	3300	3300
d . M-TADS/PNVs P3I	TBD	TBD	0	0		0		0		40000	40000	40000
<b>Subtotal:</b>			28408	14968		37500		29200		40000	150076	150076

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . NONE			0	0		0		0		0	0	0
<b>Subtotal:</b>			0	0		0		0		0	0	0

Remarks: None

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0203744A - Aircraft Modifications/Product Improvement Program</b>	<b>PROJECT</b> <b>508</b>
---------------------------------------------------------------------	----------------------------------------------------------------------------------------------------	------------------------------

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . GOV'T Qual, Air Worth, Demo, Follow-On Testing	MIPR	ATTC	0	113		1153		15991		0	17257	17257
Subtotal:			0	113		1153		15991		0	17257	17257

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Prog Mgt & Admin, SSEB	NA	PEO AVN REDSTONE ARSENAL, AL	3400	1940		1196		983		0	7519	7519
Subtotal:			3400	1940		1196		983		0	7519	7519

Project Total Cost:			31808	17021		39849		46174		40000	174852	174852
---------------------	--	--	-------	-------	--	-------	--	-------	--	-------	--------	--------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0203752A - Aircraft Engine Component Improvement Program</b>					<b>PROJECT</b> <b>106</b>			
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
106	A/C COMPON IMPROV PROG	5658	14889	3689	3858	3923	4094	4188	0	50599

**A. Mission Description and Budget Item Justification:** Aircraft Engine Component Improvement Program (CIP) develops, tests, and qualifies improvements to aircraft engine components to correct service-revealed deficiencies, improve flight safety, enhance readiness and reduce operating and support (O&S) costs. In addition, CIP provides the test vehicles for the testing and qualification efforts required as a part of the Army's Flight Safety Parts program. CIP is included in the RDTE budget vice procurement appropriations in accordance with congressional direction. This system supports the Legacy to Objective (LO) transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 1510 T700 Engine: Continue the development of the 701D engine to reduce engine O&S costs and improve engine on-wing time. Complete stress analysis modeling and start life analysis modeling for the Power Turbine Module to re-analyze and update service life limits. Perform Apache Digital Electronic Unit (DECU) EMI testing to qualify internal component replacement due to obsolescence. Begin analysis of Titanium Nitride compressor coating for improved on-wing time and reduced O&S costs.
- 834 T55 Engine: Continue development of new repair procedures to reclaim high dollar hardware. Continue applying engineering effort to unanticipated flight safety problems revealed in the field and provide timely support. Complete life analysis of -714 engine and complete partial damage fraction analysis on all three T55 engine models. Complete qualification of enhanced plumbing system. Complete bearing redesign qualification testing to optimize all current mainshaft and accessory bearing designs and reduce the overall O&S costs. Design and qualify an improved Stage 2 Disk to improve life and reduce O&S costs.
- 190 T62T APU: Perform component life analysis to determine compressor and turbine wheel safe life limits.
- 178 GTCP36 APU: Conduct field evaluation of Longbow APU oil venting solution. Complete the Dual Alloy Turbine Wheel Development program to improve durability, extend service life, and reduce cost.
- 82 IN-HOUSE: In-house support for the CIP engineers.
- 1800 Design, develop and test a "universal" FADEC utilizing new technology for improved obsolescence resistance and reduced costs.
- 10 Funds provided to Redstone Technical Test Center for Digital Electronic Control Unit (DECU) 2000 support.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203752A - Aircraft Engine Component Improvement Program</b>	PROJECT <b>106</b>
--------------------------------------------------------------	----------------------------------------------------------------------------------------	-----------------------

**FY 2001 Accomplishments: (Continued)**

- 1000 FDU: Development of new technology that is adaptable to fuel delivery units (FDU) for gas turbine engines. Develop and qualify a fuel delivery unit for the RAH-66 Comanche Secondary Power Unit (SPU)
  - 54 Support Contract for the FDU and FADEC.
- Total 5658

**FY 2002 Planned Program**

- 10365 T700 Engine: Continue the development of the 701D engine to reduce engine O&S costs and improve engine on-wing time. Complete Power Turbine Module life analysis modeling and update service life limits. Start development of the Enhanced Digital Electronic Control for the 701D engine to reduce O&S Costs and improve flight safety. Continue analysis of titanium nitride compressor coating to improve on-wing life and reduce O&S costs. Complete development of liquid or light ends air (LOLA) fuel boost pump to improve flight safety and readiness.
  - 1600 T55 Engine: Continue development of new repair procedures to reclaim high dollar hardware. Continue applying engineering effort to unanticipated flight safety problems revealed in the field and provide timely support. Design and qualify an Improved Bleed System. Complete the qualification of the improved tailpipe to reduce removals and O&S costs. Begin design of an improved N2 Sensor to reduce amount of hardware and improve O&S costs.
  - 410 GTCP36 APU: Determine root cause of Apache gearbox mechanical failures. Component life analysis/qualification testing. Perform Dual Alloy Turbine Wheel containment analysis.
  - 200 T62T APU: Component life analysis/qualification testing Combustor.
  - 64 IN HOUSE: In-house support for the CIP engineers.
  - 250 RAPTR DRP/Test Cell Correlation.
  - 1000 Universal Full Authority Digital Engine Control (FADEC)
  - 1000 Variable Displacement Vane Pump (VDVP) and Liquid or Light End Air (LOLA) Equipped Fuel Delivery Unit
- Total 14889

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203752A - Aircraft Engine Component Improvement Program**

**PROJECT**  
**106**

**FY 2003 Planned Program**

- 2000 T700 Engine: Complete the development of the 701D engine to reduce engine O&S costs and improve engine on-wing time. Continue the development of the Enhanced Digital Electronic Control for the 701D engine to reduce O&S Costs and improve flight safety. Complete development of titanium nitride compressor coating to improve on-wing life and reduce O&S costs.
- 957 T55 Engine: Continue development of new repair procedures to reclaim high dollar hardware. Continue applying engineering effort to unanticipated flight safety problems revealed in the field and provide timely support. Complete design and qualification of an improved N2 Sensor to reduce amount of hardware and improve O&S costs. Design and qualify an improved EGT Measurement System to reduce O&S costs.
- 300 T-62 APU: Redesign reduction drive housing and carrier assembly to improve maintainability/reliability. Redesign wiring harness to greatly improve reliability.
- 350 GTCP36 APU: Run 200-hour Qualification Tests for numerous CIP-developed components for the Apache and Black Hawk APUs. Develop new depot repair procedures to deal with emerging failure trends.
- 82 IN HOUSE: In-house support for the CIP engineers.

Total 3689

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	5873	13017	3684
Appropriated Value	5929	15017	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-128	0
b. SBIR / STTR	-173	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	-43	0	0
e. Rescissions	-55	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	5
Current Budget Submit (FY 2003 PB)	5658	14889	3689



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203752A - Aircraft Engine Component Improvement Program**

PROJECT  
**106**

FY02: +1M for universal Full Authority Digital Engine Control  
 +1M for VDVP and Liquid or Light-end Air Equipped Fuel Delivery Unit

**C. Other Program Funding Summary:** There are no other RDTE or other Appropriation efforts.

**D. Acquisition Strategy:** Improved designs will be implemented via Engineering Change Proposal (ECP) and follow-on procurement or modification to a production contract to introduce the improved hardware.

<u>E. Schedule Profile</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
T700 - Continue Development of 701D Engine	2Q						
T700 - PT Stress Analysis Modeling	2Q						
T700 - Apache DECU EMI Testing	2Q						
T700 - Begin Analysis on TIN Coating	3Q						
T700 - Continue Development of Improved 701D Engine		2Q					
T700 - Complete PT Life Analysis		2Q					
T700 - Start Development of 701D Enhanced DECU		2Q					
T700 - Develop Stage 2 Nozzle Internal Coating		2Q					
T700 - Develop Reduced Leakage CDP Seal		2Q					
T700 - Continue Development of Improved 701C Engine			2Q				
T700 - Complete Qualification of CDP Seal			2Q				

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203752A - Aircraft Engine Component Improvement Program</b>	PROJECT <b>106</b>
--------------------------------------------------------------	----------------------------------------------------------------------------------------	-----------------------

<b><u>E. Schedule Profile (continued)</u></b>	<b><u>FY 2001</u></b>	<b><u>FY 2002</u></b>	<b><u>FY 2003</u></b>	<b><u>FY 2004</u></b>	<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>
T55 - Complete Qualification of Hard Line Plumbing System		2Q					
T55 - Continue Development of New Repair Procedures and Providing Flight Safety Spt	4Q						
T55 - Complete Bearing Redesign Qualification Testing		2Q					
T55 - Design and Qualify Improved Stage 2 Disk		2Q					
T55 - Complete the Qualification of Improved Tailpipe to Reduce Removals & O&S Costs		4Q					
T55 - Develop Improved Bleed System Actuator		4Q					
T55 - Design and Qualify Improved N2 Sensor			4Q				
GTCP36 - Field Evaluation of Oil Leakage Solution	1Q						
GTCP36 - Complete Dual Alloy Turbine Wheel Development	2Q						
GTCP36 - Gearbox Failure Investigation			3Q				
GTCP36 - Dual Alloy Turbine Wheel Containment Analysis			2Q				
GTCP36 - Component Qualification Tests			4Q				
T62T - Complete Material Analysis for Component Lifting	4Q						
T62T - Reduction Drive Housing Design			4Q				
T62T - High Reliability Wiring Harness			3Q				
FADEC - Complete hardware design, conduct CDR	2Q						
FADEC - Initiate fabrication of development units	2Q						
FADEC - Complete preliminary software development	3Q						
FADEC - Initiate engine document support	3Q						
FADEC - Complete software development		2Q					
FADEC - Prototype software qualification testing		2Q					
FADEC - Unit durability test program		3Q					
FADEC - Support HALTS and engine testing			2Q				
FADEC - Support system level FMECA/SHA			2Q				
FDU - Finalize pressure sensor integration	2Q						
FDU - Fabricate developmental units	3Q						
FDU - Complete LOLA pump design and testing	3Q						

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

**February 2002**

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203752A - Aircraft Engine Component Improvement Program</b>	PROJECT <b>106</b>
--------------------------------------------------------------	----------------------------------------------------------------------------------------	-----------------------

<b>E. Schedule Profile (continued)</b>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
FDU - Initiate qualification testing program	3Q						
FDU - Support Subsystem Power Unit (SPU) testing	3Q						
FDU - Complete qualification testing		2Q					
FDU - Accelerated mission/endurance testing		3Q					
FDU - Continued support of SPU tests		3Q					

Schedule Profile provided for Full Authority Digital Engine Control (FADEC) and Fuel Delivery Unit (FDU) efforts is in anticipation of receiving additional funds for these efforts.

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203752A - Aircraft Engine Component Improvement**  
**Program**

**PROJECT**  
**106**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . T-700 Engine	SS/CPFF	Lynn, MA	41988	1510	2-3Q	10365	2-3Q	2000	2-3Q	Continue	Continue	Continue
b . T-55 Engine	SS/CPFF	Phoenix, AZ	20126	834	2-3Q	1600	2-3Q	957	2-3Q	Continue	Continue	Continue
c . APU's	MIPR	Air Force, Kelly AFB, TX	13557	0		0		0		0	13557	13557
d . FADEC/FDU	MIPR	CECOM, Ft. Monmouth, NJ	916	2800	1-2Q	2000	2-3Q	0		0	5716	5716
e . DECU	MIPR	RTTC, Redstone Arsenal, AL	95	10	1-2Q	0		0		0	105	105
f . APU's	MIPR	Air Force, Hill AFB, UT	0	368	2-3Q	610	1Q	650	1Q	Continue	Continue	Continue
<b>Subtotal:</b>			76682	5522		14575		3607		Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203752A - Aircraft Engine Component Improvement**  
**Program**

**PROJECT**  
**106**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contract Engineering	SS/CPFF	Westar, St. Louis, MO	10	0		0		0		0	10	10
b . Contract Engineering	SS/CPFF	Camber, Huntsville, AL	145	54	2-3Q	0		0		0	199	199
Subtotal:			155	54		0		0		0	209	209

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Redstone Avn Prop Test Res Facility Data Reduction Prog	MIPR	Redstone Technical Test Center, RSA, AL	0	0		250	2-3Q	0		0	250	250
Subtotal:			0	0		250		0		0	250	250

Remarks: Not Applicable

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203752A - Aircraft Engine Component Improvement Program**

**PROJECT**  
**106**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-house Engineering		ATCOM, St. Louis, MO	10342	0		0		0		0	10342	10342
b . In-house Engineering	NA	AMCOM, Redstone Arsenal, AL	229	82		64		82		Continue	Continue	Continue
Subtotal:			10571	82		64		82		Continue	Continue	Continue
Project Total Cost:			87408	5658		14889		3689		Continue	Continue	Continue

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>				<b>PE NUMBER AND TITLE</b> <b>0203758A - Digitization</b>				<b>PROJECT</b> <b>374</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
374	HOR BATTLEFLD DIGITIZN	30820	32027	28968	32465	33405	29939	30765	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Horizontal Battlefield Digitization is a strategy that allows warfighters, from the individual soldier and platform to echelons above corps, to share critical situational awareness (SA) and command and control information. It applies digital information technologies to acquire, exchange, and employ data throughout the battlespace, providing a clear and accurate common relevant picture for leaders at all levels. This timely sharing of information significantly improves the ability of commanders and leaders to quickly make decisions, synchronize forces and fires, and increase the operational tempo. Digitization is a means of realizing a fully integrated command and control capability to the platoon level, including interoperability links with joint and multi-national forces. The major efforts included in the program element are: 1) Integration and synchronization of the Army's digitization efforts; coordination of digitization efforts between joint and multi-national forces; and the synchronization of combat material and training efforts to develop and deploy Army XXI information technologies. 2) Systems engineering; Integration of physical interfaces and logical mechanisms between and across multiple battlefield operating systems and across multiple Program Executive Offices, providing improved capability to operate in the common battlefield picture/SA and common operating environment (COE). Enhance synchronization of maneuvers, direct/indirect fires, intelligence and targeting, and reduce fratricide. 3) Unit Set Fielding (USF). To operationally release, field, and incorporate materiel systems as part of the whole C4ISR system of systems architecture associated with the critical mission threads the Army requires to support Strategic National Tasks. USF serves as the synchronizing process, ensuring that fieldings are implemented in an integrated and complimentary fashion and support a unit's modernization with minimum disruption to unit readiness. USF will apply to all Active and Reserve Component unit modernization. Horizontal Battlefield Digitization supports the Legacy to Objective transition path of the Army Transformation Plan

**FY 2001 Accomplishments:**

- 5215 Continued data engineering evaluation and analysis testing, experimentation and interrelated simulation of hardware/software.
- 4908 Continued System/Platform Integration of heavy/light forces, synchronization assessments, battlefield digitization impact studies and system of systems issue resolution.
- 1953 Performed analysis (including modeling/simulation) to predict overall system of systems performance.
- 3738 Conducted thorough validation of digital requirements/architecture to ensure realistic/adequate data flows, mission thread analysis, interoperability, human resource engineering, security, and physical layout.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)****February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development****0203758A - Digitization****374****FY 2001 Accomplishments: (Continued)**

- 4729 Developed integration tools, plans, specifications, and other training, logistics, interface, and configuration management products for the 66 TRADOC identified systems. (e.g. BFIST, Linebacker, Aviation Platforms, Ground Combat Platforms, Integ TES into ASAS and AFATDs).
- 5175 Evaluated emerging interfaces to ensure interoperability across all functional areas. Supported tactical internet and electronic interfaces required for additional logistic functions and Aviation communication requirements of full tactical internet connectivity/mobility. Supported system integration, interoperability analysis, design, and capability demonstrations to minimize platform modifications and achieve the maximum benefits of open architecture.
- 1755 Applied university academic and research resources to the integration of Army modeling, simulation and training to support modernized forces.
- 3347 Supported Joint and Coalition interoperability programs to improve operational integration in accordance with JV 2010, including C4I Coalition Warfare, Command and Control System Interoperability Program (C2SIP) efforts, interoperability database developments, operational system architectures, the Simulation of C2 Information Systems Connectivity Experiments (SINCE) and the Multilateral Interoperability Program (MIP).

Total 30820

**FY 2002 Planned Program**

- 4552 Conduct technical interoperability studies, perform interoperability/integration analyses, analyze networked weapon system and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) system compatibility, and assess technical and operational test plans, activities, and results.
- 1608 Provide technical, analytical, and management support for implementation of information operations on the digitized battlefield.
- 1518 Coordinate, integrate, and synchronize all aspects of material system fieldings to include tracking, recording, and resolving issues for system of systems synchronization and database management in support of the Transformation Campaign Plan (TCP) priorities.
- 1325 Provide thorough validation of evolving digital requirements/architecture to ensure realistic/adequate data flows, mission thread analysis, interoperability, human resource engineering, security, and physical layout in support of the TCP.
- 1019 Develop C4I systems software baselines and manage Horizontal Technology Integration efforts. Provide assessments for risk, interoperability, performance, and scheduling. Perform System Integration functions for baselining and process improvements.
- 4286 Synchronize system/platform integration, through the use of common components, across ground and aviation programs.
- 3929 Apply emerging horizontal integrated information technologies, capitalizing on the synergism achieved through system of system fieldings across functional areas.
- 3475 Integrate and synchronize modeling and simulation interoperability with C4ISR programs in support of testing and training of system of systems developments.



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development**

**0203758A - Digitization**

**374**

## FY 2002 Planned Program (Continued)

- 1430 Provide strategic planning to the Army Experimentation Campaign Program (AECPP). Design and manage Unit Set configuration and execution. Perform management and oversight of the 3 views of architecture (system, operational, and technical).
- 1630 Identify Embedded Training Design Support tasks, methodologies, research, and development in the use of simulation.
- 2755 Apply university academic and research resources to the integration of Army modeling, simulation, and training in support of modernized forces.
- 3500 Support Joint and Coalition interoperability programs to improve operational integration in accordance with JV 2010, including C4I Coalition Warfare, Command and Control System Interoperability Program (C2SIP) efforts, interoperability database developments, operational system architectures, the Simulation of C2 Information Systems Connectivity Experiments (SINCE) and the Multilateral Interoperability Program (MIP).
- 1000 Support Digital Intelligence Situation Mapboard (DISM) Battalion Test

Total 32027

## FY 2003 Planned Program

- 4688 Conduct technical interoperability studies, perform interoperability/integration analyses, analyze networked weapon system and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) system compatibility, and assess technical and operational test plans, activities, and results.
- 1689 Provide technical, analytical, and management support for implementation of information operations on the digitized battlefield.
- 1597 Coordinate, integrate, and synchronize all aspects of material system fieldings to include tracking, recording, and resolving issues for system of systems synchronization and database management, the TCP priorities.
- 1505 Provide thorough validation of evolving digital requirements/architecture to ensure realistic/adequate data flows, mission thread analysis, interoperability, human resource engineering, security, and physical layout in support of the Transformation Campaign Plan.
- 5174 Migrate full Joint interoperability and integration standards, including the robust near real time network integration of Aviation systems with Ground systems, and robust networked and databased integration of Weapon systems with Command & Control (C2) systems. Provide synergistic operational capabilities to the force.
- 2885 Manage integration of Analysis, Modeling, and Design (AMD), including software development systems, through database integration, with other systems. Support the increased integration of training and test systems with the tactical (C4ISR) systems.
- 2659 Improve network management across all fielded digitized systems to support increased activity.
- 4210 Integrate and synchronize interoperability across C4ISR programs in support of testing, training, and fielding system of systems developments to the force. Provide efforts in architecture to strengthen and leverage S&T advanced capabilities, like flexibility and extensibility.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203758A - Digitization**

**PROJECT**  
**374**

**FY 2003 Planned Program (Continued)**

- 1061 Continue to apply university academic and research resources to the integration of Army modeling, simulation and training in support of modernized forces.
- 3500 Joint and Coalition interoperability programs for improving digitization, include the Multinational Interoperability Program (MIP) efforts. Specific tasks include continued refinement, integration, and test of the database replication mechanism and refinement of Coalition Tactics, Techniques, and Procedures (TTPs).

Total 28968

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	30384	29302	28662
Appropriated Value	30671	32302	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-275	0
b. SBIR / STTR	-865	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	1296	0	0
e. Rescissions	-282	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	306
Current Budget Submit (FY 2003 PB)	30820	32027	28968

FY 2001: Congressional increase (+1000) for continued Digitization effort at Ft. Hood, Texas.

FY 2002: Congressional increase (+2000) for continued Digitization effort at Ft. Hood, Texas and (+1000) for Digital Intelligence Situation Mapboard (DISM) Battalion Testing.

FY 2003: Funds increased for systems integration/interoperability.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203758A - Digitization**

PROJECT  
**374**

**C. Other Program Funding Summary:** Not Applicable

**D. Acquisition Strategy:** To validate/demonstrate concepts and requirements, near term efforts were focused on developing a seamless battlefield software architecture and digitized appliqué hardware systems to include: evaluation of the horizontal battlefield digitization resources for systems, acquisition, integration, and testing of digital capability across multiple command and control, communications, sensors, and weapons platforms. The result will be an integrated digital capability designed to meet the near-term requirements of the First Digitized Division, Second Digitized Division by 2003, and First Digitized Corps by the end of 2006, and the Army Transformation Force. Also supports the Army's role in joint and multi-national digitization programs; coordinates/manages security, vulnerability and "Red Teaming" functions; and manages Manpower and Personnel Integration (MANPRINT) modeling, simulations, and analysis.

<b><u>E. Schedule Profile</u></b>	<b><u>FY 2001</u></b>	<b><u>FY 2002</u></b>	<b><u>FY 2003</u></b>	<b><u>FY 2004</u></b>	<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>
Interoperability Certification		1Q					
Develop ATCCIS International Standards	1-4Q	1Q					
Develop MIP International Standards		1-4Q					
MIP Phase I Testing (ATCCIS/MIP Stds)	1-3Q						
MIP Phase I Demo		1Q					
MIP Phase I Fielding Decision		2Q					
MIP Phase II Initial Testing		1Q					
MIP Phase II & MDIE Testing (remote & in Germany)	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Participate in Coalition Exercise (Canada)		3Q					
MIP Phase II Demo & US Fielding Decision		4Q					
MIP Phase II Tests, Integration & Refinement			1-4Q	1-4Q	1-4Q		
Participate in MDIE Coalition Exercise				4Q		4Q	
Final MIP Solution Demo & Fielding Decision					4Q		
Embedded Battle Command (EBC) Port and Mass storage device upgrades	3Q	1Q	1Q	1Q	1Q		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203758A - Digitization**

**PROJECT**  
**374**

<b><u>E. Schedule Profile (continued)</u></b>	<b><u>FY 2001</u></b>	<b><u>FY 2002</u></b>	<b><u>FY 2003</u></b>	<b><u>FY 2004</u></b>	<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>
EBC PowerPC chip Test & Evaluation	1Q	1Q					
FBCB2 Initial Operation Test & Evaluation			1Q				
FBCB2 Initial Operational Capability				1Q			
Evaluate electronic interface to tactical Internet and to C2 systems.	1-4Q	1-4Q	1-4Q	1-4Q			
Conduct analysis to support system design, experimentation and implementation	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Light Force Digitization		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Equip First Digitized Corps	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	
Equip Second Digitized Division	1-4Q	1-4Q	1-4Q				
Digital Intelligence Situation Mapboard Battalion test		2-4Q					

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203758A - Digitization**

**PROJECT**  
**374**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Integration	MIPR/PWD	Various	27045	15609	2-4Q	15639	1Q	15000	1Q	Continue	Continue	Continue
b . International Digitization	MIPR/PWD	Various	5654	3347	2-3Q	3500	1Q	3500	1Q	Continue	Continue	Continue
c . Technical Analysis	MIPR	MITRE, McLean, VA	1748	1140	1Q	1140	1Q	1200	1Q	Continue	Continue	Continue
d . Other Government Agencies	MIPR	Various	3263	1774	1Q	985	1Q	500	1Q	Continue	Continue	Continue
Subtotal:			37710	21870		21264		20200		Continue	Continue	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Directorate of Integration Office Operations	In House	Pentagon, Arlington, VA	3431	1581	1-4Q	1180	1-4Q	1400	1-4Q	Continue	Continue	Continue
b . Digitization Planning, Internet and graphics support	MIPR	Signal Corp. Pentagon, Arlington, VA	2737	1277	1Q	1285	1Q	1700	1Q	Continue	Continue	Continue
c . Info Ops, System Eng. Integration & Ops Spt.	PWD	Quantum Res International, Arlington, VA, Ft. Monroe, VA & Ft. Hood, TX	4752	2804	1Q	3470	1Q	4100	1Q	Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203758A - Digitization**

**PROJECT**  
**374**

II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
d . Other Integration Support	MIPR	CRC/UHD/ATC/MPRI, Arlington, VA	993	460	1Q	470	1Q	180	1Q	Continue	Continue	Continue
Subtotal:			11913	6122		6405		7380		Continue	Continue	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Other Govt. Agencies	MIPR	Various	4156	558	1Q	221	1Q	127	1Q	Continue	Continue	Continue
b . University XXI Initiatives	PWD	Univ. of Texas and Texas A&M	4182	1755	1Q	2755	1Q	1061	1Q	Continue	Continue	Continue
c . Studies/Analyses	MIPR	Pentagon, Arlington, VA	1079	515	1Q	382	1Q	200	1Q	Continue	Continue	Continue
d . DISM Battalion Test	MIPR/PWD		0	0	2-3Q	1000		0		0	1000	0
Subtotal:			9417	2828		4358		1388		Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203758A - Digitization</b>	PROJECT <b>374</b>
--------------------------------------------------------------	-------------------------------------------------------	-----------------------

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

Project Total Cost:			59040	30820		32027		28968		Continue	Continue	Continue
---------------------	--	--	-------	-------	--	-------	--	-------	--	----------	----------	----------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0203759A - Force XXI Battle Command, Brigade and Below (FBCB2</b>						<b>PROJECT</b> <b>120</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
120	FORCE XXI BATTLE CMD, BRIGADE & BELOW (FBCB2)	62144	56381	64915	29396	20578	15088	17035	70000	650103

**A. Mission Description and Budget Item Justification:** The Force XXI Battle Command Brigade and Below (FBCB2) is a digital battle command information system which provides integrated, real-time, situational awareness and command and control information. It will provide mounted/dismounted tactical combat, combat support and combat service support commanders, leaders and soldiers with integrated, on-the-move, real time/near real time battlefield information. This digitization is a pentium based computer with a graphics display, global positioning system and communications link. The system will enhance the ability of tactical commanders, while on the move, to synchronize their forces, achieve agility, and gain an understanding of the battlespace through improved SA. FBCB2 will be integrated into the mounted and dismounted maneuver (divisional, separate, heavy and light), cavalry/reconnaissance and armored cavalry, mechanized infantry, and aviation units.

FBCB2 is a key element of the Army Battle Command System (ABCS) and provides the technology to complete the ABCS information flow process from brigade to platform and across platforms within the brigade task force and across brigade boundaries. FY 03 dollars will further develop and test the FBCB2 software. FBCB2 is an Army designated Horizontal Technology Integration (HTI) program. This system supports the legacy to the objective transition paths of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 24201 Conducted system/network engineering, integration and testing, and modeling and simulation to support FBCB2 and Army Battle Command System (ABCS) integration.
  - 5020 Developed FBCB2 Interactive Electronic Technical Manual (IETM), training plans of instruction (POI's) for FBCB2 v3.4. Developed field maintenance manuals in support of technical/operational testing.
  - 13144 Completed software development efforts for FBCB2 v3.4 to support LUT 2A and FDD/FDC fielding; initiated development of FBCB2 v3.5 for IBCT and requirements for dismounted systems.
  - 14659 Conducted Government testing to include FBCB2 reliability test, FT4 and LUT 2/Division Capstone Exercise (DCX1).
  - 4120 PM FBCB2 Program Management.
  - 1000 TACNAV - Developed hardware/software interface between Tactical Navigation Electronic Digital Compass System and FBCB2
- Total 62144



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development**

**0203759A - Force XXI Battle Command, Brigade and**

**120**

**Below (FBCB2**

## FY 2002 Planned Program

- 13033 Continue ABCS architecture and system of systems network engineering and integration efforts in support of ABCS 7.0.
- 22320 Conduct LUT 2A at Ft. Hood, TX, FT5 at Ft. Huachuca, AZ, Line of Sight(LOS) Testing at Ft. Knox, KY, and Initiate IOT&E Planning and Preparation
- 14555 Complete software development for v3.5, initiate development of v7.0 and support Government Testing.
- 1299 Develop training plans, (POI's) maintenance and technical manuals for v3.5.
- 5174 PM FBCB2 Program Management

Total 56381

## FY 2003 Planned Program

- 19327 Continue ABCS architecture and system of systems network engineering and integration efforts in support of ABCS 7.0.
- 21040 Conduct combined FBCB2/MCS/ISYSCON(V4) Initial Operational Test and Evaluation (IOT&E)(Force Effectiveness, Phase I), at FT. Hood, TX, Climatic (Extreme Cold), at Ft. Greely, AK, NTC 03-05(Force Effectiveness Phase II) at National Training Center, Ft Irwin, CA
- 1038 Initiate development of training materials for FBCB2 v7.0.
- 18763 Continue development of FBCB2 software v7.0 and support Government Testing.
- 4747 PM FBCB2 Program Management.

Total 64915

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203759A - Force XXI Battle Command, Brigade and**  
**Below (FBCB2**

**PROJECT**  
**120**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	64009	56872	27789
Appropriated Value	64601	56872	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-491	0
b. SBIR / STTR	-1853	0	0
c. Omnibus or Other Above Threshold Reduction	0	0	0
d. Below Threshold Reprogramming	-12	0	0
e. Rescissions	-592	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	37126
Current Budget Submit (FY 2003 PB)	62144	56381	64915

FY01: \$1M Congressional Plus-up for the Tactical Navigation Electronic Digital Compass System.  
 FY02: \$491K decrease due to Congressional General Reductions.  
 FY03: \$37.1M increase FY 03 for Software Development and Future Testing.

<u><b>C. Other Program Funding Summary</b></u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
Other Procurement Army Activity 2 SSN W61900	72225	74090	65294	133996	87886	98705	82593	1494805	2175773
Other Procurement Army Activity 4 SSN BS9736 (Spares)	743	1380	1891	3961	3202	3236	3233	0	17646

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203759A - Force XXI Battle Command, Brigade and**  
**Below (FBCB2**

**PROJECT**  
**120**

**D. Acquisition Strategy:** The initial EMD contract, awarded in 1995, is a Cost Plus Incentive Fee (CPIF), Systems Engineering and Integration (SE&I) effort. The contract is for the development of software versions v1.0-v3.4, prototype computers, and associated hardware. A follow-on SE&I contract (CPAF) was awarded in May 2001 for software versions v3.5 and v7.0. This will satisfy the ORD Block II requirements and synchronize with ABCS 7.0.

A Low Rate Initial Production (LRIP)Fixed Price Incentive Fee (FPIF) contract was awarded in January 2000 for the production of 5,952 systems with OPA funds. A Full Rate Production (FRP)contract will be awarded in 1QFY04 following a FRP Decision Review in 4QFY03.

<b>E. Schedule Profile</b>	<b>FY 2001</b>	<b>FY 2002</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>
Equip 4TH ID	1Q						
Abrams/Bradley IOTE/FOTE	1Q						
LUT2/DCX1	2Q						
Follow on SE&I (Block II) Contract Award	3Q						
Version 3.4 FBCB2 Software Delivery	4Q						
LUT 2A		1Q					
Version 3.5 FBCB2 S/W Delivery		2Q					
FT5		3-4Q					
Line of Sight (LOS) Testing		4Q					
Initial Operational Test & Evaluation (IOTE)			1Q				
Climatic (Extreme Cold) Testing Ft. Greely, AK			1-2Q				
NTC 03-05 (Force Effectiveness Phase II)			2Q				
MS III/Full Rate Production Decision Review			4Q				
Full Rate Production Contract Award				1-2Q			
Award SE&I (Block III) Contract				1Q			
FBCB2 Software v7.0 Delivery					1Q		
FBCB2 Software v8.0 Delivery						3Q	

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0203759A - Force XXI Battle Command, Brigade and Below (FBCB2</b>	<b>PROJECT</b> <b>120</b>
---------------------------------------------------------------------	----------------------------------------------------------------------------------------------------	------------------------------

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software/Systems Engineering	CPIF/CPAF	TRW, CA	99002	24201	1Q	13033	1Q	19327	1Q	55408	210971	210971
b . Hardware Development	FFP	TRW, CA.	27645	0		0		0		0	27645	27645
c . Software Development	CPIF/CPAF	TRW, CA	149096	18164	1Q	15854	1Q	19801	1Q	65989	268904	268904
d . TACNAV	CPIF	TRW CA	0	1000		0		0		0	1000	1000
Subtotal:			275743	43365		28887		39128		121397	508520	508520

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Office Support	N/A	CECOM, Ft. Monmouth	8419	1534	1Q	984	1Q	1488	1Q	7144	19569	0
b . Matrix Support	MIPR	CECOM, Ft. Monmouth	3383	356	1Q	202	1Q	294	1Q	1599	5834	0
c . Misc. Contracts Support	MIPR/PWD	CECOM, Ft. Monmouth	12089	2230	1Q	3988	1Q	2965	1Q	12557	33829	33829
Subtotal:			23891	4120		5174		4747		21300	59232	33829

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203759A - Force XXI Battle Command, Brigade and**  
**Below (FBCB2**

**PROJECT**  
**120**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . CTSF	MIPR	CTSF	2133	0	1Q	0		0		0	2133	0
b . ATEC	MIPR	ATEC	6623	9786	1-2Q	18190	1Q	20910	1Q	0	55509	0
c . EPG	MIPR	EPG	6176	4873	1Q	4130	1Q	130	1Q	9400	24709	0
Subtotal:			14932	14659		22320		21040		9400	82351	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Project Total Cost:			314566	62144		56381		64915		152097	650103	542349
---------------------	--	--	--------	-------	--	-------	--	-------	--	--------	--------	--------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>				<b>PE NUMBER AND TITLE</b> <b>0203761A - Force XXI WRAP</b>				<b>PROJECT</b> <b>394</b>	
COST (In Thousands)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to	Total Cost
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
394    FORCE XXI INITIATIVES	0	15446	0	0	0	0	0	0	15446

**A. Mission Description and Budget Item Justification:** The Rapid Acquisition Program for Transformation (RAPT) continues as one of the Army's proven Acquisition Reform initiatives. The overall intent of the program is to put proven technologies from successful experimentation in the hands of the warfighter faster and cheaper by reducing acquisition cycle time. Candidates considered for funding through this program are compelling, mature technologies capable of achieving a Milestone C decision in the near future or following one to two years of continued development. Initiatives can originate from virtually anywhere. "Good ideas" continue to emerge from such sources as the Training and Doctrine Command (TRADOC) Centers, Schools and Battle Labs, the user community, the Army Materiel Command (AMC), Research Development & Engineering Centers (RDECs), the Project Manager/Program Executive Officer (PM/PEO) community, industry, Academia, Horizontal Technology Integration (HTI), General Officer Steering Committees (GOSCs), and the Federally Funded Research and Development Centers (FFRDCs). The primary sources for initiatives are the Battle Lab Warfighting Experiments (BLWEs), Advanced Warfighting Experiments and the Advanced Concept Technology Demonstrations (ACTDs). The RAPT program is the bridge linking Army's compelling successes in experimentation to systems acquisition. This program element was established to support the RAPT program, consistent with Congressional language reflected in the Department of Defense Appropriations Bill. The nature of RAPT funding requires internal fund realignments for initiatives associated with on-going programs typically in other program elements or other appropriations, subject to congressional or legal constraints.

**FY 2001 Accomplishments:**

No funds appropriated for this effort.

**FY 2002 Planned Program**

- 15466    Funds to be realigned to following approved RAPT systems pending Army reprioritization: Unit Water Pod (CAMEL); Logistics Handling System Compatible Water Tankrack (HIPPO); Project D (classified program); Information Dissemination Management - Tactical; Authorized Stockage List Mobility System; Digital Reconnaissance, Surveillance and Target Acquisition System; Global Positioning System in SINCGARS.

Total 15466

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203761A - Force XXI WRAP**

PROJECT  
**394**

**FY 2003 Planned Program**

Funds aligned to programs where actual execution will occur.

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	0	23593	28983
Appropriated Value	0	15446	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	0	0
b. SBIR / STTR	0	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. DoD Internal Reprogramming	0	0	0
e. Rescissions	0	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-28983
Current Budget Submit (FY 2003 PB)	0	39039	0

FY 03: Funds re-aligned to programs where actual execution will occur.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)****February 2002**

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203761A - Force XXI WRAP**

PROJECT

**394**

**C. Other Program Funding Summary:** Not applicable for this item.

**D. Acquisition Strategy:** Not applicable.

**E. Schedule Profile:** Not applicable for this item.



## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203761A - Force XXI WRAP**

**PROJECT**  
**394**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . RAPT candidates	Various	TBD	0	0		15446	1-4Q	0		0	15446	0
Subtotal:			0	0		15446		0		0	15446	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203761A - Force XXI WRAP</b>	PROJECT <b>394</b>
--------------------------------------------------------------	---------------------------------------------------------	-----------------------

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

Project Total Cost:			0	0		15446		0		0	15446	0
---------------------	--	--	---	---	--	-------	--	---	--	---	-------	---

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203801A - Missile/Air Defense Product Improvement Program</b>
--------------------------------------------------------------	------------------------------------------------------------------------------------------

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	13892	13727	43738	45266	32630	17100	11124	0	200576
036 PATRIOT PROD IMP PGM	6440	9758	43713	45244	32607	17100	11124	0	182281
038 AVENGER PIP	2000	0	0	0	0	0	0	0	0
303 STINGER RMP PIP	5452	3969	25	22	23	0	0	0	18295

**A. Mission Description and Budget Item Justification:** The goal of the Air Defense Artillery (ADA) modernization is to provide well-trained soldiers with the most capable systems at the right time to defeat the evolving threat. The ADA systems support the Air and Missile Defense (AMD) force which assists the Army and the Joint Force in gaining Full Spectrum Dominance in any operational requirement. ADA must continually be upgraded and modernized to meet all challenges, from small scale contingencies to major theater wars (MTW). The FY03 budget funds critical improvements to the Patriot program.

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	12248	8539	10043
Appropriated Value	12365	13839	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-112	0
b. SBIR / STTR	-359	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	2000	0	0
e. Rescissions	-114	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	33695
Current Budget Submit (FY 2003 PB )	13892	13727	43738

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203801A - Missile/Air Defense Product Improvement Program**

FY02 Congressional increase of \$5.3 million for Patriot Ground SLEP.  
FY03 increase for Patriot Recapitalization requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203801A - Missile/Air Defense Product Improvement Program</b>	PROJECT <b>036</b>
--------------------------------------------------------------	------------------------------------------------------------------------------------------	-----------------------

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
036 PATRIOT PROD IMP PGM	6440	9758	43713	45244	32607	17100	11124	0	182281

**A. Mission Description and Budget Item Justification:** The Patriot Product Improvement Program upgrades the Patriot system through a series of individual materiel changes (MC) culminating in the attainment of the Patriot Advanced Capability - 3 (PAC-3) system. The communication upgrades improve Patriot's above and below battalion communication equipment. These changes eliminate Patriot-peculiar communications equipment and improve Patriot's interoperability between systems and the Services. FY00 was the first year for the Remote Launch Communication Enhancement Upgrade (RLCEU) Link 16 Phase 1 and Post Deployment Build 5 (PDB 5). RLCEU Link 16 will develop and test the hardware required for a Link-16 terminal, terminal control, and communications processing equipment to receive and process the Link 16 Joint Data Net information. PDB 5 will improve system capability against advanced threats (Theater Ballistic Missiles and Air-Breathing Threats (TBMs and ABTs) in all environments, to include clutter and/or intense Electronic Counter Measures (ECM). Program objective will be to define the software changes necessary to enhance system capabilities against advanced TBM and cruise missile threats. In addition, interoperability improvements [e.g., Cooperative Engagement Capability (CEC) interface, cueing, and Tactical Data Information Link (TADIL) direct to Fire Unit (FU)], PAC-3 missile integration improvements in ground software, Classification Discrimination & Identification (CDI3) enhancements, and on-line diagnostic evolution will be addressed. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 2454 Continued RLCEU Link 16 Phase I
  - 3986 Initiated Post PDB 5
- Total 6440

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203801A - Missile/Air Defense Product  
Improvement Program**

PROJECT  
**036**

## FY 2002 Planned Program

- 4458 Continue Post PDB 5
  - 5300 Recap
- Total 9758

## FY 2003 Planned Program

- 6713 Continue Post PDB 5
  - 27750 Recap
  - 4250 Special Program (PIP)
  - 5000 SIAP
- Total 43713

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203801A - Missile/Air Defense Product Improvement Program**

PROJECT  
**036**

<u>B. Other Program Funding Summary</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
Budget Activity 3 - Patriot Mod (C50700)	22718	24942	151307	234600	90198	79431	81634	340100	1074560
Budget Activity 3 - Patriot Mod Initial Spares CA0267	2625	726	40655	32692	15206	15622	9811	23337	144291

**C. Acquisition Strategy:** The design objective of the Patriot system was to provide a baseline system capable of modification to cope with the evolving threat. This alternative minimizes technological risks and provides a means of enhancing system capability through planned upgrades of deployed systems. The Patriot program consists of two interrelated acquisition programs - the Patriot growth program and the PAC-3 missile program. Growth program modifications are grouped into configurations, which are scheduled to be fielded in the same timeframe. Configuration groupings are convenient for managing block changes of hardware and software and are not a performance-related grouping. However, incremental increases in performance will be determined for each configuration in order to provide benchmarks for configuration testing and for the development of user doctrine and tactics.

<u>D. Schedule Profile</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Post PDB-5 Software Improvements Initiated	1Q						
RLCEU Link 16 Phase I Program Initiated	1Q						
RLCEU Link 16 Phase I Program Continuation	1-4Q						
PAC-3 Missile FUE	4Q						
PAC-3 Missile MS III		4Q					
PAC-3 Missile FOT			1-4Q	1-4Q			
PAC-3 Missile FRP			1Q				
PAC-3 Missile IOC					4Q		

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203801A - Missile/Air Defense Product Improvement Program**

**PROJECT**  
**036**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . RLCEU Link 16 Phase I			0	1226		0		0		0	1226	0
b . Post PDB 5			0	1607		1174		1636		Continue	4417	Continue
c . Recap			0	0		5300	2Q	27750	2Q	0	33050	0
d . Special Program (PIP)			0	0		0		4250	2Q	0	4250	0
e . SIAP			0	0		0		5000	3Q	0	5000	0
Subtotal:			0	2833		6474		38636		Continue	47943	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support		RSA/AL	13303	858		800		700		Continue	Continue	Continue
b . Matrix Support		RSA/AL	2043	700		604		509		Continue	Continue	Continue
Subtotal:			15346	1558		1404		1209		Continue	Continue	Continue



## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0203801A - Missile/Air Defense Product Improvement Program</b>	<b>PROJECT</b> <b>036</b>
---------------------------------------------------------------------	-------------------------------------------------------------------------------------------------	------------------------------

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Missile Command	1095	RSA/AL	12586	1449		1462		1400		Continue	16897	Continue
b . White Sands Missile Range	MIPR	WSMR/NM	11740	600		418		424		Continue	Continue	Continue
c . RDEC and Other Govt Agent	1095/MIPR	RSA/AL	95732	0		0		2044		0	97776	0
Subtotal:			120058	2049		1880		3868		Continue	Continue	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

<b>Project Total Cost:</b>			135404	6440		9758		43713		Continue	Continue	Continue
----------------------------	--	--	--------	------	--	------	--	-------	--	----------	----------	----------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203802A - Other Missile Product Improvement Programs**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	54419	68318	13018	9988	0	19810	9975	0	190260
336 TOW PIP	42710	50174	0	0	0	0	0	0	107300
785 LONGBOW HELLFIRE PIP	11709	18144	13018	9988	0	0	0	0	52859
786 APKWS SIMULATOR UPGRADE	0	0	0	0	0	19810	9875	0	30000
797 ATACMS 2020	0	0	0	0	0	0	100	0	101

**A. Mission Description and Budget Item Justification:** The TOW Fire and Forget (F&F) Missile program provides a capability to Light Early-Entry Contingency Forces and the Interim Brigade Combat Teams equipped with the TOW Improved Target Acquisition System (ITAS). The Army has recently completed a thorough review of all programs in order to balance near-term requirements with Objective Force needs. As a result, the TOW F&F program is not funded beginning in FY 03.

Longbow HELLFIRE is a critical system to the Interim and Objective Forces. Longbow HELLFIRE provides the Army with a fire-and-forget, anti-armor capability for the Apache Longbow (Interim Force) and Comanche (Objective Force) helicopters. The fire-and-forget Longbow HELLFIRE system greatly increases aircraft survivability and dramatically improves target acquisition and engagement capabilities in adverse weather when the battlefield is obscured (smoke, fog, dust), and when the threat is using countermeasures. Evolutionary improvements are required to maintain the current effectiveness of the Longbow HELLFIRE missile against expanding regional power threats. The Longbow HELLFIRE Product Improvement Program (PIP) will improve Home-on-Jam (HOJ)/Anti-Jam (AJ) and add Counter-Active Protection System (CAPS) capabilities for the missile. The HOJ/AJ and CAPS objective is to maintain the Longbow HELLFIRE Missile System's low vulnerability, and susceptibility to any "hard kill" Active Protection System (APS) and battlefield jammer threats. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

The Advanced Precision Kill Weapon System (APKWS) Training Simulator upgrades will consist of the development, testing, and installation of the software/hardware necessary for pilot training. These software upgrades will be developed, tested, and installed on the AH-64 Apache, and the RAH-66 Comanche helicopter simulators. These training simulator upgrades will aid the pilot in the initial and annual training required for firing the APKWS munition. The training simulator upgrades will significantly reduce the number of munitions required for initial and annual training. The system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203802A - Other Missile Product Improvement Programs**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	55900	84935	58460
Appropriated Value	56418	68935	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-617	0
b. SBIR / STTR	-1662	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	181	0	0
e. Rescissions	-518	0	0
f. Other Withholds	0	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-45442
Current Budget Submit (FY 2003 PB )	54419	68318	13018

FY02 Congressional reduction of \$16 million.  
 FY03 reductions due to higher Army priorities.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203802A - Other Missile Product Improvement Programs</b>	PROJECT <b>785</b>
--------------------------------------------------------------	-------------------------------------------------------------------------------------	-----------------------

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
785      LONGBOW HELLFIRE PIP	11709	18144	13018	9988	0	0	0	0	52859

**A. Mission Description and Budget Item Justification:** Longbow HELLFIRE is an objective force missile system that provides the Army with a fire -and-forget, anti-armor capability for the Apache Longbow (Interim Force) and Comanche (Objective Force) helicopters. The fire -and-forget Longbow HELLFIRE system greatly increases aircraft survivability and dramatically improves target acquisition and engagement capabilities in adverse weather when the battlefield is obscured (smoke, fog, dust), and when the threat is using countermeasures. Evolutionary improvements are required to maintain the current effectiveness of the Longbow HELLFIRE missile against expanding regional power threats. The Longbow HELLFIRE Product Improvement Program (PIP) will improve Home -on-Jam (HOJ)/Anti-Jam (AJ) and add Counter-Active Protection System (CAPS) capabilities for the missile. The HOJ/AJ and CAPS objective is to maintain the Longbow HELLFIRE Missile System's low vulnerability, and susceptibility to any "hard kill" Active Protection System (APS) and battlefield jammer threats. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 10122      Developed system requirements and preliminary design for HOJ/AJ software and CAPS hardware.
- 525        Completed update and reconfiguration of the Telemetry Mobile Ground Station (TMGS).
- 1062      Performed government engineering support.

Total 11709

**FY 2002 Planned Program**

- 15062      Complete critical/final design of HOJ/AJ software; complete 6 degree of freedom modeling.
- 1814      Conduct tower, wind tunnel, and hardware in the loop testing.
- 1268      Perform government engineering support.

Total 18144

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203802A - Other Missile Product Improvement Programs**

PROJECT

**785**

## FY 2003 Planned Program

- 10373 Implement design changes; formal hardware qualification; hardware in the loop; complete critical/final design; complete guidance section and rocket ball design evaluation.
- 1336 Conduct missile ground flight test, low speed captive flight test, and aircraft system flight test.
- 1309 Perform government engineering support.

Total 13018

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203802A - Other Missile Product Improvement Programs**

PROJECT  
**785**

<u>B. Other Program Funding Summary</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
C70300 Longbow Hellfire/LBHF	282745	233278	184396	38718	37154	47527	18449	0	1135118

**C. Acquisition Strategy:** Development of the Longbow Hellfire HOJ/AJ and CAPS will be sole source to the prime contractor, Longbow Limited Liability Company (LLC). The U.S. Army Aviation and Missile Command (AMCOM) labs will provide assistance/technical expertise during the development effort. A sole source contract was awarded to the LLC for development and qualification of HOJ/AJ and CAPS.

<u>D. Schedule Profile</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Concept formulation/acquisition strategy LBHF PIP	1Q						
LLC contract award LBHF PIP	2Q						
Requirements definition LBHF PIP	3Q						
Test and Evaluation		2-3Q					
Missile firings LBHF HOJ/AJ			2Q				
Engineering Change Proposal LBHF HOJ/AJ			3Q				
Complete detailed design LBHF CAPS			2Q				
Test and Evaluation				2Q			
Engineering Change Proposal LBHF CAPS				3Q			

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203802A - Other Missile Product Improvement Programs**

**PROJECT**  
**785**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Prime Contract	LC/CPIF-AF	Longbow Limited Liability Company, Orlando, FL	0	8479	2Q	12722	1Q	8970	1Q	4829	35000	0
b . Support Contracts	Various	Various	0	1103		1006		623		764	3496	0
c . Development Engineering	Various	Various	0	540		1334		780		1000	3654	0
Subtotal:			0	10122		15062		10373		6593	42150	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203802A - Other Missile Product Improvement Programs**

**PROJECT**  
**785**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	Various	Various	0	525		1814		1336		2288	5963	0
Subtotal:			0	525		1814		1336		2288	5963	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	Various	Various	0	1062		1268		1309		1107	4746	0
Subtotal:			0	1062		1268		1309		1107	4746	0

Project Total Cost:			0	11709		18144		13018		9988	52859	0
---------------------	--	--	---	-------	--	-------	--	-------	--	------	-------	---



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0208010A - Joint Tactical Communications Program (TRI-TAC)</b>							
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	35423	21428	14121	10822	10667	6318	8279	Continuing	Continuing
01D TACTICAL INTERNET MANAGEMENT SYSTEM	0	0	4888	4626	1488	0	0	0	11002
107 ISYSCON DEVELOPMENT	35423	21428	9233	6196	9179	6318	8279	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** A requirement exists to automate Signal Corps units' capability to manage multiple tactical communications systems in support of battlefield operations. The Integrated System Control (ISYSCON) facility will provide centralized management of the tactical communications network, establish an interface with each technical control facility in the Army Battlefield Command System (ABCS) architecture, and enable automated configuration and management in a dynamic battlefield data network, provided by MSE and the ACUS MOD Programs. ISYSCON is being developed with incremental software releases. The ISYSCON Program serves as a baseline foundation to support future network management initiatives tied to and part of the digitized division and the Warfighter Information Network (WIN) Architecture. This program element will also interface with the WIN-Tactical Architecture and Network Management Facilities.

The ISYSCON (V)4 Tactical Internet Management System (TIMS) is also being developed to facilitate network planning and management of the Tactical Internet at Brigade and Below, as well as the Tactical Operations Centers (TOC) and Command Posts (CP) Local Area Network (LAN) at all required Echelons.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0208010A - Joint Tactical Communications Program (TRI-TAC)**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
President's Previous Budget (FY 2002 PB)	38563	21615	12150
Appropriated Value	38926	21615	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-187	0
b. SBIR / STTR	-1147	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	-2000	0	0
e. Rescissions	-356	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	1971
Current Budget Submit (FY 2003 PB )	35423	21428	14121

FY03 Adjustments to Budget Years reflect \$1.971M plus up for testing.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0208010A - Joint Tactical Communications Program</b> <b>(TRI-TAC)</b>					<b>PROJECT</b> <b>01D</b>			
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
01D TACTICAL INTERNET MANAGEMENT SYSTEM		0	0	4888	4626	1488	0	0	0	11002

**A. Mission Description and Budget Item Justification:** The Integrated System Control (ISYSCON) (V)4/Tactical Internet Management System (TIMS) is being developed to do network planning and management of the Tactical Internet at Brigade and Below (Force Battle Command Brigade & Below-FBCB2), as well as the Tactical Operation Center (TOC) and Command Post (CP) Local Area Network (LAN) at all required Echelons. Starting in FY03, TIMS funding transitions to this new Project 01D from the ISYSCON (V)1/(V)2 Project D107.

The TIMS system supports the Legacy transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

Project begins in FY2003, FY2001 funding contained in ISYSCON PE 0208010A/Project 107

**FY 2002 Planned Program**

Project begins in FY2003, FY2002 funding contained in ISYSCON PE 0208010A/Project 107

**FY 2003 Planned Program**

- 1178 TIMS Initiate Test & Evaluation (Release 4.0)
- 980 TIMS Initiate Requirement Analysis (Release 4.0)
- 1100 TIMS Initiate Systems Engineering (Release 4.0)
- 1630 TIMS Initiate Software Development (Release 4.0)

Total 4888

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0208010A - Joint Tactical Communications Program (TRI-TAC)</b>	PROJECT <b>01D</b>
--------------------------------------------------------------	----------------------------------------------------------------------------------------------	-----------------------

<u>B. Other Program Funding Summary</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
BX0007 ISYSCON	28816	32198	31366	18787	15691	5026	3047	Continuing	Continuing
0208010, Proj 107, ISYSCON	14726	7220	0	0	0	0	0	Continuing	Continuing
B93900 TIMS	0	0	11842	16363	4656	4647	4440	0	41948

**C. Acquisition Strategy:** The Tactical Internet Management System (ISYSCON (V)4/TIMS) was developed from Army Warfighter Experiments that showed tactical network management and planning to be extremely time consuming. A DD-2028 change to the ISYSCON Requirement Operational Capability (ROC) identified the need for Tactical Internet and Tactical Operation Command (TI and TOC) Local Area Network management. In Mar 99, PDM, Communications Systems Management (CMS) signed a delivery order under the PM, Force XXI Battle Command Brigade and Below (FBCB2) contract with TRW in response to the DD-2028 requirements. Raytheon is under contract to develop an Enhanced Position/Location Reporting System Network Manager (ENM) capability while TRW will develop the remaining TIMS functionality (TOC LAN MGT, Router Configurations, Tactical Internet Configurer/Tactical Internet Designer, etc) and integrate the ENM software onto a single platform. The TIMS is closely coupled to FBCB2 program events. An Operation Requirements Document (ORD) is in development to supercede the ISYSCON ROC/2028 Change and will be approved in 2QFY02. Release 1 of TIMS software was formally tested at the contractor's facility prior to the FBCB2 Customer Test (Apr 00). Release 2.1 was used for the FBCB2 Limited User Test 2 (DCX-1). Milestone C Limited Deployment was approved June 21, 2001. Release 2.2F was assessed at TIMS LUT2A in Dec 01. Software Release 2.5 IOT&E is scheduled for 1QFY03. Full Rate Production & Material Release 2.5 for TIMS is scheduled for 4QFY03. TIMS Release 4.0 will be issued in yearly PDSS.

<u>D. Schedule Profile</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
TIMS IOT&E Release 2.5			1Q				
TIMS Initiate Release 4.0			2-4Q				
TIMS Full Rate Production (Release 2.5)			4Q				
TIMS Material Release (Release 2.5)			4Q				
TIMS (Release 4.0)				1-4Q			

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0208010A - Joint Tactical Communications Program**  
**(TRI-TAC)**

**PROJECT**  
**01D**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TIMS Software Development	CPIFF/T&M	TRW, Carson, CA	0	0		0		3445	1Q	Continue	Continue	0
Subtotal:			0	0		0		3445		Continue	Continue	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0208010A - Joint Tactical Communications Program**  
**(TRI-TAC)**

**PROJECT**  
**01D**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:												

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TIMS Contractor Engr	See Remarks	Misc.	0	0		0		351	2Q	Continue	Continue	0
b . TIMS Government Engr	MIPR	Misc.	0	0		0		948	2Q	Continue	Continue	0
c . TIMS PM Support Core	MIPR	PM, WIN-T	0	0		0		64	2Q	Continue	Continue	0
d . TIMS Travel	MIPR	MISC	0	0		0		80	1-4Q	Continue	Continue	0
Subtotal:			0	0		0		1443		Continue	Continue	0

Project Total Cost:			0	0		0		4888		Continue	Continue	0
---------------------	--	--	---	---	--	---	--	------	--	----------	----------	---

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0208010A - Joint Tactical Communications Program</b> <b>(TRI-TAC)</b>					<b>PROJECT</b> <b>107</b>			
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
107 ISYSCON DEVELOPMENT	35423	21428	9233	6196	9179	6318	8279	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** A requirement exists to provide Signal Corps units the automated capability to manage multiple tactical communication systems in support of battlefield operations. The Integrated System Control (ISYSCON) facility will provide centralized management of the tactical communication network, establish an interface with each technical control facility in the Army Battlefield Command System (ABCS) architecture, and enable automated configuration and management in a dynamic battlefield data network, provided by MSE and the ACUS MOD Programs. ISYSCON is being developed with incremental software releases. The ISYSCON Program serves as a baseline foundation to support future network management initiatives tied to and part of the digitized division and the Warfighter Information Network (WIN) architecture. This program element will also interface with the WIN-Tactical Architecture and Network Management Facilities.

The ISYSCON (V)4 Tactical Internet Management System (TIMS) is also being developed to do network planning and management of the Tactical Internet at Brigade and Below (Force Battle Command Brigade & Below), as well as the Tactical Operation Center Local Area Network (TOC LAN). Starting in FY03, TIMS funding transitions to a new Project, D01D, within PE 208010A.

The Joint Network Management System (JNMS) is a Commander in Chief (CINC), Commander Joint Task Force (CJTF) communications planning and management tool. It provides the capability to conduct high level planning (war planning); detailed planning and engineering; monitoring; control and reconfiguration; spectrum planning and management; and security of networks, in support of joint operations. The JNMS will be developed in phases: System Architecture, Key Performance Parameters (KPP) Threshold, and Threshold and Objective. JNMS funding transitioned to a separate Program Element (64783) and Project (D363) in FY02.

The ISYSCON and TIM systems support the Legacy transition path of the Transformation Campaign Plan (TCP). The JNMS system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)****February 2002**

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0208010A - Joint Tactical Communications Program  
(TRI-TAC)**

PROJECT

**107****FY 2001 Accomplishments:**

- 1915 ISYSCON Initiate P2 Inc 2 Systems Requirements Analysis
- 2763 ISYSCON Initiate P2 Inc 2 System Design
- 2770 ISYSCON Initiate P2 Inc 2 Software Coding
- 2749 ISYSCON Initiate P2 Inc 2 Software Unit & System Test
- 1400 TIMS Complete System Engineering (Release 2.1)
- 1385 TIMS Complete Software Development (Release 2.1)
- 750 TIMS Conduct Test and Evaluation (Release 2.1)
- 1900 TIMS Complete Requirements and Analysis (Release 2.2)
- 1500 TIMS Conduct Operational Assessment(Release 2.1B)
- 2493 TIMS Complete Systems Engineering(Release 2.2)
- 3348 TIMS Complete Software Development(Release 2.2)
- 950 TIMS Conduct Test & Evaluation (Release 2.2)
- 1000 TIMS Conduct Field Support(Release 2.1 & 2.2)
- 2475 JNMS Initiate Concept Requirement and Analysis
- 4025 JNMS Initiate System Design
- 3591 JNMS Initiate Software Integration
- 409 JNMS Initiate Training for User Evaluation

Total 35423



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0208010A - Joint Tactical Communications Program  
(TRI-TAC)**

PROJECT  
**107**

## FY 2002 Planned Program

- 4602 ISYSCON Continue P2 Inc 2 Software Coding
- 4606 ISYSCON Continue P2 Inc 2 Software Unit & System Test
- 2400 ISYSCON Continue P2 Inc 2 Systems Requirement Analysis
- 2300 ISYSCON Continue P2 Inc 2 System Design
- 1550 TIMS Conduct LUT2A (Release 2.2F)
- 1100 TIMS Initiate Requirements and Analysis (Release 2.5)
- 1750 TIMS Initiate Systems Engineering (Release 2.5)
- 2200 TIMS Initiate Software Development (Release 2.5)
- 620 TIMS Conduct Test & Evaluation (Release 2.5)
- 300 WIN-Tactical Network Management and Associated Activities

Total 21428

## FY 2003 Planned Program

- 2400 ISYSCON Complete P2 Inc 2 Software Coding
- 2800 ISYSCON Complete P2 Inc 2 Software Unit & System Test
- 1400 ISYSCON Conduct P2 Inc 2 Regression Test
- 1833 ISYSCON Initiate P2 Inc 3 Software Coding
- 800 ISYSCON Initiate P2 Inc 3 Software Unit & System Test

Total 9233

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0208010A - Joint Tactical Communications Program (TRI-TAC)</b>	PROJECT <b>107</b>
--------------------------------------------------------------	----------------------------------------------------------------------------------------------	-----------------------

<u>B. Other Program Funding Summary</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
BX0007 ISYSCON EQ	28816	32198	31366	18787	15691	5026	3047	Continuing	Continuing
028010, Project 01D, Tactical Internet Management System (TIMS)	0	0	4888	4626	1488	0	0	0	11002

**C. Acquisition Strategy:** ISYSCON (V)1&2 Competitive Engineering and Manufacturing Development (EMD) contract was awarded to General Dynamics in September 92. ISYSCON Low Rate Initial Production (LRIP) decision - May 95. First Initial Operational Test and Evaluation (IOT&E) - Mar 1998. Second IOT&E conducted/completed - Oct 98. LRIP systems supported IOT&E. Successful Milestone III - Feb 99 for ISYSCON (V)1 and (V)2. ISYSCON Phase 2 Increment 1 and later versions of software supports the fielding of production systems starting with echelon corps and below units. The next Block Software Release provides Network Management for Echelons Above Corps (EAC), and interoperability with ABCS, JNMS, and WIN-Tactical. ISYSCON production systems include acquisition of Government Furnished Equipment (Common Hardware and Software(CHS)/Standardized Integrated Command Post System(SICPS)) hardware for the integration into system assemblages and fielding.

The Tactical Internet Management System (TIMS) was developed from Army Warfighter Experiments that showed tactical network management and planning to be extremely time consuming. A DD-2028 change to the ISYSCON Requirement Operational Capability (ROC) identified the need for Tactical Internet and Tactical Operation Command (TI and TOC) Local Area Network management. In Mar 99, PDM, Communications Management Systems (CMS) signed a delivery order under the PM, Force XXI Battle Command Brigade and Below (FBCB2) contract with TRW, and another with Raytheon under the PM, Tactical Radio Communications System (TRCS) contract, in response to the DD-2028 requirements. Raytheon is under contract to develop an Enhanced Position/Location Reporting System Network Manager (ENM) capability while TRW will develop the remaining TIMS functionality (TOC LAN MGT, Router Configurations, Tactical Internet Configurer /Tactical Internet Designer, etc.) and integrate the ENM software onto a single platform. The TIMS is closely coupled to FBCB2 program events. An Operation Requirements Document (ORD) is in development to supercede the ISYSCON ROC/2028 Change and will be approved in 2QFY02. Release I of TIMS software was formally tested at the contractor's facility prior to the FBCB2 Customer Test (Apr 00). Release 2.1 was used for the FBCB2 Limited User Test 2 (DCX-1) development test in Jan 00 and Release 2.1B was issued to 4th ID in Feb 01 to support the Division Capstone Exercise at NTC and the FBCB2 Limited User Test 2. Milestone C Limited Deployment was approved Jun 21, 2001. Release 2.2F was assessed at TIMS LUT2A in Dec 01. Software Release 2.5 IOT&E is scheduled for 1QFY03. Full Rate Production and Material Release for TIMS 2.5 is scheduled for 4QFY03. TIMS Release 5.0 will be issued in yearly PDSS & Software Enhancement Releases starting in 4QFY03.

Joint Network Management System (JNMS): TRADOC approved revision 2 to the ORD dated May 00. Milestone A/B approved Aug 2000. A competitive contract was awarded May 14, 2001 on a best value basis for the development and integration of the JNMS software.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0208010A - Joint Tactical Communications Program**  
**(TRI-TAC)**

**PROJECT**  
**107**

<u>D. Schedule Profile</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
ISYSCON Phase 2 - Increment 2 FQT			3Q				
ISYSCON Phase 2-Increment 3 FQT					1Q		
ISYSCON Phase 2 Increment 3 Operational Test					3Q		
ISYSCON Phase 3-Increment 1 FQT						3Q	
TIMS Milestone C Limited Deployment	3Q						
TIMS Release 2.1	1Q						
TIMS Release 2.2	3Q						
TIMS Milestone C - Limited Deployment	3Q						
TIMS LUT2A Release 2.2F		1Q					
JNMS Contract Award	3Q						

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0208010A - Joint Tactical Communications Program**  
**(TRI-TAC)**

**PROJECT**  
**107**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ISYS SW Development	CPAF/CPFF	GDC4S, Taunton, MA	99825	6614	1Q	12229	1Q	7471	1-2Q	Continue	126139	0
b . ISYS Award Fee Contingencies	CPAF	GDC4S, Taunton, MA	5427	901		0		0		0	6328	0
c . ISYS GFE	FFP	GDC4S, Taunton, MA	2239	0		90	1Q	0		0	Continue	0
d . TI MGR (1) Software Development	IDIQ	Raytheon, Fullerton, CA	650	0		0		0		0	650	0
e . TI MGR (2) Software Development	CPFF/TM	TRW, Carson, CA	11309	11834	1Q	5061	1Q	0		0	28204	0
f . TI MGR GFE	FFP	GSA and GDC4S, Taunton, MA	933	550	1Q	0		0		0	1483	0
g . JNMS Development	CPFF/TM/FFP	SAIC, McLean, VA	0	10408	3Q	0		0		0	10408	0
Subtotal:			120383	30307		17380		7471		Continue	Continue	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0208010A - Joint Tactical Communications Program**  
**(TRI-TAC)**

**PROJECT**  
**107**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ISYS Test Support	MIPR	TEXCOM/APG/EPG	2375	200	1Q	175	1Q	200	1Q	Continue	Continue	0
b . ISYS Accreditation	MIPR	Software Engineering Center	0	110	1Q	240	1Q	100	1Q	Continue	Continue	0
c . TI MGR (V)4 Test Support	MIPR	TEXCOM/APG/EPG	0	1000	1Q	935	1Q	0		Continue	1935	0
d . JNMS Accreditation	MIPR	Software Engineering Center	0	100	1Q	0		0		0	100	0
Subtotal:			2375	1410		1350		300		Continue	Continue	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0208010A - Joint Tactical Communications Program**  
**(TRI-TAC)**

**PROJECT**  
**107**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ISYS Contractor Engr	See remarks	MISC	17166	352	1Q	355	1Q	263	1Q	Continue	Continue	0
b . ISYS Government Engr	MIPR	MISC	11750	704	1Q	709	1Q	819	1Q	Continue	Continue	0
c . ISYS PM Support-Core	MIPR	PM WIN-T	1156	150	1Q	180	1Q	180	1Q	Continue	Continue	0
d . ISYS Travel	MIPR	MISC	989	150		230		200		Continue	Continue	0
e . TI MGR Contractor Engr	See Remarks	MISC	299	438	1Q	250	2Q	0		Continue	987	0
f . TI MGR Government Engr	MIPR	MISC	556	424	1Q	773	2Q	0		Continue	1753	0
g . TI MGR PM Support - Core	MIPR	PM, WIN-T	0	52	1Q	61	2Q	0		Continue	113	0
h . TI MGR Travel	MIPR	MISC	65	80	1-4Q	140	1-4Q	0		Continue	285	0
i . JNMS Contractor Engr	See Remarks	MISC	0	512	1Q	0		0		0	512	0
j . JNMS Government Engr	MIPR	MISC	0	486	1Q	0		0		0	486	0
k . JNMS PM Support - CORE	MIPR	PM, WIN-T	0	158	1Q	0		0		0	158	0
l . JNMS Travel	MIPR	MISC	0	200	1-4Q	0		0		0	200	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development**

**0208010A - Joint Tactical Communications Program  
(TRI-TAC)**

**107**

IV. Management Services (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			31981	3706		2698		1462		Continue	Continue	0
Project Total Cost:			154739	35423		21428		9233		Continue	Continue	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0208053A - Joint Tactical Ground System</b>				PROJECT <b>635</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
635 JOINT TACT GRD STATION-P3I(TIARA)	6209	5176	2860	2505	8047	19869	16005	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program element supports development of critical improvements to the Joint Tactical Ground Station (JTAGS). JTAGS is a transportable information processing system which receives and processes in-theater, direct down-linked data from Defense Support Program satellites and the follow-on Space Based Infrared System satellites. JTAGS disseminates warning, alerting, and cueing information on Tactical Ballistic Missiles (TBMs) and other tactical events of interest throughout the theater using existing communication networks. This program is designated as a DoD Space program. JTAGS is designated the in-theater element of the United States Space Command's Theater Event System. JTAGS supports all Theater Missile Defense pillars and by being located in-theater, provides the shortest sensor to shooter connectivity. The objectives of the improvements are to upgrade JTAGS to the Multi-Mission Mobile Processor (M3P) for operation with the next generation of the space based infrared satellites and improve system accuracy and timeliness. The M3P development for the Space Based Infrared System is a combined development effort with the U.S. Air Force. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 3297 Continued Phase II M3P development
  - 2601 Continued Phase II M3P Integrated Product and Process Development (IPPD)
  - 311 Continued Phase II M3P management support
- Total 6209

**FY 2002 Planned Program**

- 3555 Continue Phase II M3P IPPD
  - 1361 Continue Phase II M3P development
  - 260 Continue Phase II M3P management support
- Total 5176



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0208053A - Joint Tactical Ground System**

PROJECT  
**635**

**FY 2003 Planned Program**

- 2368 Continue Phase II M3P IPPD
  - 349 Continue Phase II M3P development
  - 143 Continue Phase II M3P management support
- Total 2860

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	6208	5221	3072
Appropriated Value	6267	5221	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-45	0
b. SBIR / STTR	0	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-58	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-212
Current Budget Submit (FY 2003 PB)	6209	5176	2860

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0208053A - Joint Tactical Ground System</b>	PROJECT <b>635</b>
--------------------------------------------------------------	-----------------------------------------------------------------------	-----------------------

<u>C. Other Program Funding Summary</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
BZ8420 Joint Tactical Ground Station Mods	0	0	0	0	0	7844	23400	Continue	Continue

**D. Acquisition Strategy:** Critical JTAGS improvements under this program element will be developed making maximum use of Non-Developmental Items/Commerical Off-The-Shelf elements. After selection and assembly, the modification design will be subject to thorough integration and performance testing to verify operational effectiveness and suitability. Phase II M3P is a joint development effort with the U.S. Air Force and involves cost sharing of the acquisition effort.

<u>E. Schedule Profile</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Continue P3I Phase II Development	1Q						
Continue P3I Phase II Development		1Q					
Continue P3I Phase II Development			1Q				
Continue P3I Phase II Development				1Q			
Continue P3I Phase II Development					1Q		
Initiate P3I Phase III Development						1Q	
Continue P3I Phase III Development							1Q

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0208053A - Joint Tactical Ground System**

**PROJECT**  
**635**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Primary Hardware Development	C/CPAF	Lockheed / Sunnyvale, CA	20851	3297	2Q	1361	1Q	349	1Q	Continue	25858	Continue
b . Engineering Services	C/CPFF	Northrup Grumman/ Azusa, CA	3256	300	3Q	330	2Q	300	1Q	0	4186	0
c . In-House IPPD Support	N/A	Various	7058	1250		1534		1089		Continue	10931	Continue
d . Contractor Engineering IPPD Support	C/CPFF	Various	6478	646	1Q	1153	1Q	824	1Q	Continue	9101	Continue
e . Government Engineering IPPD Support	N/A	Various	8013	359		538		155		Continue	9065	Continue
f . Government Furnished Equipment	N/A	Various	265	46		0		0		0	311	0
Subtotal:			45921	5898		4916		2717		Continue	59452	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0208053A - Joint Tactical Ground System</b>	<b>PROJECT</b> <b>635</b>
---------------------------------------------------------------------	------------------------------------------------------------------------------	------------------------------

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Management Support	N/A	N/A	679	311		260		143		Continue	Continue	Continue
Subtotal:			679	311		260		143		Continue	Continue	Continue

<b>Project Total Cost:</b>			46600	6209		5176		2860		Continue	Continue	Continue
----------------------------	--	--	-------	------	--	------	--	------	--	----------	----------	----------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0303028A - Security and Intelligence Activities</b>						<b>PROJECT</b> <b>H13</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
H13	INFORMATION DOMINANCE CENTER (IDC) - TIARA	0	2434	5438	6018	5755	5814	5827	0	Continuing

**A. Mission Description and Budget Item Justification:** Funds used for the development of a prototype for intelligence analysis and counter-intelligence operations supporting information operation missions. Denying, disrupting, and suppressing the adversary's information flow and his ability to effectively command and control his operations is the Army's goal of waging information-age warfare. The Information Dominance Center (IDC) is a beta development and demonstration facility, which uses advanced indigenously developed software and architectures for harvesting, visualizing, displaying, sharing, analyzing, fusing, and developing courses of action for commanders and decision makers in a real-time environment. The center can address both a tactical or strategic threat across a wide array of transnational and asymmetrical foes.

The IDC will play a critical role in Army's development of a full spectrum information operations capability that spans both the offensive and protective arenas. Key to waging an information war against an enemy will be gaining and maintaining full spectrum battlefield visualization, comprehension of enemy and friendly territory, knowledge of battlefield deception, Psychological Operations (PSYOP), public affairs, civil affairs, electronic warfare, Operations Security (OPSEC), and understanding the impact of critical nodes (regional and local). The IDC will support Force Protection/anti-terrorism operations by providing predictive analysis and warnings of attacks on our soldiers or infrastructure. The IDC also will be employed in support of peacekeeping and humanitarian aid missions. The IDC will demonstrate and test methodologies and tools, providing operational plans to fight asymmetric and asynchronous warfare against transnational and non-aligned threats. This new capability would provide the unique collaborative environment to rapidly acquire diverse information, dynamically achieve situational awareness, and provide tailored courses of action to warfighters and DA decision-makers.

The IDC will correlate data from local and international media as well as operational and intelligence sources. The center will perform evaluation, prototype and threat map political, military, economic, and social fabrics to aid in force protection/facilities protection for U.S. forces on the ground. The IDC will be the prototype for fused battlefield visualization showing the affects of air war at one location on a big screen display; collateral damage; infrastructure damage; location of paramilitary and military forces; and the dislocation of refugees and resultant humanitarian aid issues. The IDC will demonstrate a fused battlefield visualization picture of foreign and U.S. centers of gravity in support of contingency operations to help support diplomatic initiatives. It will prototype a fused, object oriented, GIS-oriented, visualization picture of the major political and economic players at international, national, regional, local levels on all selected regions. In addition, the IDC will leverage an ability to analyze a tactical view of the conflict enabling the Army to conduct offensive information operations (PSYOP, computer attack, deception and denial, media influence, cover operations) that could be used to compliment air strikes.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)****February 2002**

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0303028A - Security and Intelligence Activities**

PROJECT

**H13****FY 2001 Accomplishments:**

Program not funded

**FY 2002 Planned Program**

- 434 Contractor will develop means of integrating leading edge technology into the Information Dominance Center's intelligence production and analysis capability.
- 2000 Contractor will develop means of integrating leading edge technology in the Expert Radar Signature Solution

Total 2434

**FY 2003 Planned Program**

- 438 Continue development of Software/Hardware development
- 5000 Technology development to meet validated operational requirements for quick reaction capability (QRC) computer network attack (CNA) weapons in support of Army Commanders.

Total 5438

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303028A - Security and Intelligence Activities**

**PROJECT**  
**H13**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
President's Previous Budget (FY 2002 PB)	0	452	451
Appropriated Value	0	2452	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-18	0
b. SBIR / STTR	0	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	0	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	4987
Current Budget Submit (FY 2003 PB)	0	2886	5438

FY02: Increase provides for Expert Radar Signature Solution

FY03: Increase provides Army a flexible, deployable, sustained, computer network attack (CNA) quick reaction capability (QRC).

<u><b>C. Other Program Funding Summary</b></u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
Security and Investigative Activities, BA411128)	4200	0	0	0	0	0	0	0	6900

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303028A - Security and Intelligence Activities**

PROJECT  
**H13**

**D. Acquisition Strategy:** The Army strategy is to add emerging command and control information technology to existing information and decision support architectures. Systems will largely be off-the-shelf procurements. A time and materials contract, awarded to Sterling Software, is used for software and hardware integration. A time and materials contract awarded to SYTEX, Inc. is used for development of intelligence modeling support.

<b>E. Schedule Profile</b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Develop Information Visualization Capability							
C2 Development/Improvements							
Design extended IDC capability	1Q						
Develop software/hardware architecture	1Q						
Develop tailored database schema and ontology	3Q						
Conduct preliminary system tests	4Q						
Conduct field tests	4Q						



## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303028A - Security and Intelligence Activities**

**PROJECT**  
**H13**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . CNA Weapon Systems	TBD	TBD	0	0		2000		5000	1-4Q	Continue	Continue	Continue
b . Intel Production & Analy Capability	Various	Various	6684	0		434	1-4Q	438	1-4Q	Continue	Continue	Continue
Subtotal:			6684	0		2434		5438		Continue	Continue	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

# ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303028A - Security and Intelligence Activities**

**PROJECT**  
**H13**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:												

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:												

Project Total Cost:			6684	0		2434		5438		Continue	Continue	Continue
---------------------	--	--	------	---	--	------	--	------	--	----------	----------	----------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>		PE NUMBER AND TITLE <b>0303140A - Information Systems Security Program</b>							
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	12109	13253	14844	15143	15642	16741	17641	0	134636
491 INFORMATION ASSURANCE DEVELOPMENT	6547	12129	13574	13758	14192	15197	16052	0	114428
501 ARMY KEY MGT SYSTEM	1236	1124	1270	1385	1450	1544	1589	0	15882
50B ARMY COMMON ACCESS CARD/PUBLIC KEY INFRASTRUCTURE	4326	0	0	0	0	0	0	0	4326

**A. Mission Description and Budget Item Justification:** The Communications Security Equipment Program develops Information Systems Security (ISS) equipment and techniques required to combat threat Signal Intelligence capabilities and to insure the integrity of data networks. The Army's Research Development Test and Evaluation (RDTE) ISS program objective is to implement National Security Agency (NSA) developed security technology in Army information systems. Communications Security Equipment Technology (COMSEC) ensures total signal and data security for all Army information systems, to include any operational enhancement and specialized Army configurations. The Army Key Management System (AKMS) automates key generation and distribution while supporting joint interoperability. It provides communications and network planning with key management. AKMS is a part of the management/support infrastructure for the Warfighter Information Network - Tactical (WIN-T) program. Additional modifications to the AKMS baseline are required to support the emerging WIN-T architecture. System security engineering, integration of available Information Security (INFOSEC) products, development, and testing are provided to ensure that C4I systems are protected against malicious or accidental attacks. Several joint service/NSA working groups exist in the area of key management in order to avoid duplication and assure interoperability between all systems, including the establishment of standards and testing. The Defense Information Systems Agency (DISA) Multi-Level Security (MLS) working group coordinates all the different ongoing technology efforts. This program will also develop, integrate, and demonstrate C2 Protect Common Tools into C4I systems that manage, protect, detect and react to C2 system vulnerabilities, threats, reconfigurations, and reconstitutions. Modeling, simulation, and risk management tools will be used to develop C2 Protect capabilities, enabling the warfighter to distribute complete and unaltered information and maintain a dynamic, continuous synchronous operational force.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	14503	8261	8658
Appropriated Value	14640	13361	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-108	0
b. SBIR / STTR	-396	0	0
c. Omnibus or Other Above Threshold Reductions	-2000	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-135	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	6186
Current Budget Submit (FY 2003 PB )	12109	13253	14844

FY01: \$2M Congressional add reprogrammed to properly align for appropriate execution to comply with intent.  
 FY03: \$6M added for Biometrics Anti Terrorism/Force Protection requirement.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303140A - Information Systems Security Program</b>	PROJECT <b>491</b>
--------------------------------------------------------------	-------------------------------------------------------------------------------	-----------------------

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
491    INFORMATION ASSURANCE DEVELOPMENT	6547	12129	13574	13758	14192	15197	16052	0	114428

**A. Mission Description and Budget Item Justification:** Command and Control (C2) Protect Development: Project implements National Security Agency (NSA) developed security technology in Army information systems. Project objectives are to provide systems security mechanisms through encryption, trusted software or standard operating procedures, and to integrate these mechanisms into specified systems, securing operations in as transparent a manner possible. This entails architecture studies, modeling, system integration and testing, installation kits, and certification and accreditation of Automation Information Systems. Project will also assess, develop, integrate and demonstrate C2 Protect Common tools (hardware and software) providing protection for fixed infrastructure post, camp and station networks as well as efforts on tactical networks. This program supports the Legacy to Objective transition path of the Transformation Campaign.

**FY 2001 Accomplishments:**

- 894 Supported development efforts on Secure Gateway program.
- 990 Supported in-house evaluations of NDI and NSA INFOSEC devices and chips, provide engineering/fielding support to TACLANE and Asynchronous Transfer Mode (ATM) encryption program with development of necessary installation kits.
- 4663 Supported the development and evaluation of C2 Protect Common Tools as follows:
  - Ensured remote monitoring and host agent operation.
  - Extended security management concept for framework that can manage echelons, corps and below.
  - Tied in protect tools at sustaining base.
  - Supported Information Assurance Network Assessment and Red Teaming to verify robustness of network tools.
  - Developed initial Virtual Network Simulator (VNS) capability to enhance training of Information Assurance managers to recognize and respond to information assurance attacks.
  - Accelerated the development and use of Public Key Infrastructure (PKI) services and enable applications to support a broad range of security services.

Total 6547

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0303140A - Information Systems Security Program**

PROJECT

**491**

## FY 2002 Planned Program

- 2241 - Support development of Secure Gateway and begin testing of the developing products.
  - Continue the in-house evaluations of new Non Developmental Item (NDI) and NSA infosecurity products and develop installation kits for Network Security Equipment.
  - Support TACLANE/FASTLANE installation and integration thru installation kit development.
- 4788 Support the development of information assurance tools as follows:
  - Perform post FDD information assurance network assessment to improve security posture.
  - Select and assess advanced COTS/GOTS information assurance tools.
  - Conduct field test "red teaming".
  - Tailor tool enhancement for unique tactical applications.
- 5100 - Conduct test and evaluation of Biometric Commercial off-the-shelf hardware and software to determine suitability for use within DOD.
  - Conduct modeling and simulation efforts to support operational evaluation.
  - Enhance CECOM prototype Biometric platform delivered to Biometrics Management Office
  - Implement biometric access control on personal digital assistant suitable for military and dual-use application.
  - Support biometrics integration in existing command and control and MIS systems.

Total 12129

## FY 2003 Planned Program

- 2595 - Continue development/testing of Secure Gateway.
  - Conduct in-house evaluation of new NDI and NSA infosecurity products and continue the development of installation kits for Network Security Equipment.
  - Investigate Low Probability of Intercept (LPI)/Low Probability of Detection (LPD) techniques for integration in very short range radios.
- 4979 Develop and evaluate information assurance tools as follows:

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0303140A - Information Systems Security Program**

PROJECT

**491**

**FY 2003 Planned Program (Continued)**

- Select and assess advanced COTS/GOTS information assurance tools for use in the First Digitized Corps (FDC) and/or sustaining base.
- Stress and evaluate COTS/GOTS tools during evaluation process.
- Conduct performance modeling of the network effects of information assurance tools.
- Perform information assurance network assessments on FDD architecture in the field.
- 6000 - Conduct test and evaluation of Biometric Commercial-off-the-Shelf hardware and software to determine suitability for use within DOD.
- Enhance CECOM prototype Biometric Platform delivered to Biometrics Management Office,
- Implement biometric access control on personal digital assistant suitable for military and dual-use application
- Support biometrics integration in existing command and control and MIS systems

Total 13574

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303140A - Information Systems Security Program**

PROJECT  
**491**

<u>B. Other Program Funding Summary</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
OPA TA0600	78425	52339	39055	37030	40289	39752	57176	Continuing	Continuing

**C. Acquisition Strategy:** The object of the C2 Protect Program is to develop, integrate, and validate hardware and software tools that will secure the Tactical Internet (TI) in the FDD. FY 2000 and beyond focuses on completing development and evaluation of C2 Protect tools for the FDD and beyond that will support the procurement of C2 Protect tools and will secure the TI for the lower and upper levels of the Tactical Internet.

<u>D. Schedule Profile</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
· Full fielding of AIRTERM (KY-100)	1-4Q						
TISM (Laboratory Testing)							
· Field Testing (Prototype Development Initiation)	1-4Q	1-4Q	1-4Q	1-4Q			
C2 Protect							
· Network Access Control	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
· Intrusion Detection Control	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
· Host Machine Vulnerabilities	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
· Risk Management	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
· Anti-Viruses	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
· Purge Tools	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
· Audit Analysis	1-4Q	1-4Q	1-4Q	1-3Q	1-4Q	1-4Q	1-4Q
Security Management	1-4Q	1-4Q	1-4Q	1-3Q			
TACLANE							
Type Classification (conditional)	2Q						
Acquisition of Installation Kits	1-4Q						
Type Classification Standard (TC Standard)		1-4Q					
INE Upgrades				1-4Q	1-4Q	1-4Q	
LPI Technigques - Investigate Techniques			1-4Q	1-4Q			
LPI - Prototype & Test					1-4Q	1-4Q	1-4Q



## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**491**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Engineering		CECOM, RDEC	14260	4330	1Q	2225	1Q	2618	1Q	Continue	Continue	Continue
b . TACLANE	MIPR	NSA	2684	0		0		0		0	2684	0
c . SEGAT	CPFF	CSC, Eatontown, NJ	40	500	1Q	0		0		0	540	0
d . EKMS	MIPR	Navy, Washington	2000	0		0		0		0	2000	0
e . C2 Protect Common Tools			0	0		0		0		0	0	0
f . (1)	TBD	Quantum Research, TX	0	43	1-4Q	0		0		0	43	0
g . (2)	C-CPFF	Booz, Allen & Hamilton, Linthicum MD	1603	159	1Q	0		0		0	1762	0
h . (3)	C-CPFF	SYTEX, Inc Tinton Falls, NJ	1182	56	1Q	0		0		0	1238	0
i . (4)	T&M	CSC, Eatontown, NJ	0	140	1-4Q	0		0		0	140	0
j . (5)	C-Reimb.	Mitre, McLean, VA	513	200	1-4Q	0		0		0	713	0
k . (6)	CPAF	Telos, Tinton Falls, NJ	281	219	1-4Q	0		0		0	500	0
l . (7)	C-CPFF	Atlantic Consulting Services, GA	0	900	1-4Q	0		0		0	900	0

# ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**491**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
m . C2 Protect	C-CPFF	TBD	0	0		4804	1-4Q	4956	1-4Q	Continue	Continue	Continue
n . DHIAP	C-Reimb	SCRA/Adv Tech Inst, SC	11798	0		0		0		0	11798	0
o . DHIAP	PO	Health Tech Strategies, McLean Va	229	0		0		0		0	229	0
p . DoD Biometrics Program		Biometrics Fusion Center	0	0		5100		6000	1-4Q	0	11100	0
Subtotal:			34590	6547		12129		13574		Continue	Continue	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**491**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

Project Total Cost:			34590	6547		12129		13574		Continue	Continue	Continue
---------------------	--	--	-------	------	--	-------	--	-------	--	----------	----------	----------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0303140A - Information Systems Security Program</b>				PROJECT <b>501</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
501 ARMY KEY MGT SYSTEM	1236	1124	1270	1385	1450	1544	1589	0	15882

**A. Mission Description and Budget Item Justification:** This program provides decentralized and automated key generation, distribution and management while enhancing joint interoperability. It eliminates paper encryption and provides communications network planning with key management. This system supports the Legacy transition path of the Transformation Campaign Plan (TCP) and the Warfighter Information Network-Tactical (WIN-T).

**FY 2001 Accomplishments:**

- 1099 Developed next set of software tools for the AKMS Workstation development environment.
- 112 Government Engineering
- 25 Testing

Total 1236

**FY 2002 Planned Program**

- 1010 Continue development of next set of software tools for the AKMS Workstation development environment to include TCP and WIN-T.
- 114 Government Engineering

Total 1124

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303140A - Information Systems Security Program**      PROJECT  
**501**

**FY 2003 Planned Program**

- 1154 Continue development of next set of software tools for the AKMS Workstation development environment to include TCP and WIN-T.
- 116 Government Engineering

Total 1270

<b><u>B. Other Program Funding Summary</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
OPA BA1201	10868	12109	10150	3760	3919	4145	4241	Continuing	Continuing

**C. Acquisition Strategy:** AKMS Initial Operational Test and Evaluation (IOTE) occurred in August - September FY97. Direction was provided to separate the Local COMSEC Management Software (LCMS) from the Automated Communication Engineering System (ACES). Milestone III was conducted in June 1999 and the acquisition strategy and type classification for LCMS was approved. The IOC for LCMS was completed in 4Q FY00 and the IOC for ACES is scheduled for 2Q FY02.

<b><u>D. Schedule Profile</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Material Release (ACES)		2Q					
ACES IOC		2Q					
AKMS Materiel Release for new Army Acquisition Programs		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**501**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software development	C/T&M	GTC, Tampa, FL	20919	90	1Q	0		0		0	21009	0
b . Software development	C/T&M	ISS, Bethesda, MD	0	1009	2Q	1010	2Q	1154	2Q	Continue	Continue	0
c . EKMS	MIPR	Navy, Washington	3900	0		0		0		0	3900	0
Subtotal:			24819	1099		1010		1154		Continue	Continue	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0303140A - Information Systems Security Program</b>	<b>PROJECT</b> <b>501</b>
---------------------------------------------------------------------	--------------------------------------------------------------------------------------	------------------------------

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Testing	MIPR	SPARWAR, San Diego, CA	0	25	2Q	0		0		0	25	0
Subtotal:			0	25		0		0		0	25	0

Remarks: Not Applicable

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contractor Engineering	C/T&M	TELOS System Integration, Ashburn, VA	154	0		0		0		0	154	0
b . Government Engineering	MIPR	CECOM, Fort Monmouth, NJ	324	112	1Q	114	2Q	116	2Q	Continue	Continue	0
Subtotal:			478	112		114		116		Continue	Continue	0

Project Total Cost:			25297	1236		1124		1270		Continue	Continue	0
---------------------	--	--	-------	------	--	------	--	------	--	----------	----------	---

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0303141A - Global Combat Support System</b>						<b>PROJECT</b> <b>083</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
083	GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)	68867	84426	71864	83089	77786	80425	82255	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Global Combat Support System-Army/Tactical (GCSS-A/T) is the number one enabler for the Army Combat Service Support (CSS) transformation, operating at all force levels, and will take advantage of today's web technology and Business Process Reengineering initiatives to support logistics management. It integrates and consolidates the 13 legacy system baselines which now support Army tactical logistics. Consists of six major modules - Supply/Property (SPR), Maintenance (MNT), Supply Support Activity (SSA), Integrated Materiel Management (IMM), Management (MGT), and Ammunition Supply. Implementation of the Global Combat Support System (Retail/Tactical) is a modernization and integration of the current 13 legacy system baselines. They are being transformed from multiple stovepipe and non-integrated systems to a seamless, integrated and modern web-based application.

**FY 2001 Accomplishments:**

- 66104      Awarded contract for new Systems Integrator. Continued development on the SPR Module. Began preliminary development of the MNT Module. Began enhancement of the Integrated Logistics Analysis Program (ILAP) capability.
  - 2763      PMO operations
- Total 68867

**FY 2002 Planned Program**

- 81608      Complete development efforts on Build 2 of SPR and conduct qualification testing. Continue development of SPR Module with Build 3 functionality. Continue development of the MNT Module. Testing to support a Milestone decision on the Supply/Property module. Begin BPR and development on the MGT Module.
  - 2818      PMO operations
- Total 84426



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303141A - Global Combat Support System</b>	PROJECT <b>083</b>
--------------------------------------------------------------	-----------------------------------------------------------------------	-----------------------

**FY 2003 Planned Program**

- 68979 Continue development of MGT and MNT Modules, begin initial testing to support the fielding of the Build 1 MNT Modules and pending architecture approval, start development efforts for the Supply Support Activity (SSA) Module.
  - 2885 PMO operations
- Total 71864

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	73664	94177	43630
Appropriated Value	71955	85177	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-751	0
b. SBIR / STTR	-2052	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	-2085	0	0
e. Rescissions	-660	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	28234
Current Budget Submit (FY 2003 PB)	68867	84426	71864

FY02 decrease the result of Congressional reductions (-\$9.715M).  
 FY03 increase supports Army's Transformation effort to streamline logistics information systems and processes.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303141A - Global Combat Support System</b>	PROJECT <b>083</b>
--------------------------------------------------------------	-----------------------------------------------------------------------	-----------------------

<u>C. Other Program Funding Summary</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
OPA SSN: W00800, STACOMP	17450	40660	47221	49553	51797	56662	58119	Continue	Continue
OMA APE: 432612/432615	12149	11562	14921	14090	14139	14662	15055	Continue	Continue

**D. Acquisition Strategy:** The process owner is Deputy Chief of Staff for Logistics. Project Manager (PM), GCSS-Army, manages GCSS-Army. PM GCSS-Army is assigned to the PEO, STAMIS, who reports directly to the Army Acquisition Executive. Integrated Process Teams (IPTs) were used to formally manage the acquisition process and continue to be used for requirements definition through the Joint Application Development (JAD). The software developers hold numerous JAD meetings bringing the users to a central location, discussing user needs and developing system requirements. The Acquisition Program Baseline documents all cost, schedules, and technical performance criteria. Performance goals are defined in the Mission Essential Tasks (METs) and non-METs lists. Controls are in place to monitor the technical performance of matrix support organizations, including periodic reviews at all management levels. Reports are used to monitor program costs and schedules. Developmental, system qualification, and operational and evaluation testing is conducted. The Test & Evaluation Master Plan (TEMP) established management oversight for the testing program. GCSS-Army has developed a Risk Management Plan that identifies risk descriptions, their initiating events and appropriate mitigation/contingency strategies. The Program's procurement budget includes the replacement of aging, out-of-warranty legacy hardware with GCSS-A compatible equipment.

<u>E. Schedule Profile</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
New functionalities/Web development	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	
Milestone Decision, Supply Property Module		4Q					
Fielding Decision, Mgt Module			3Q				
Fielding Decision, IMM Module					3Q		
Fielding Decision, Maintenance Module Build 1			3Q				
Fielding Decision, Maintenance Module Build 2				2Q			
Fielding Decision, Supply Support Activity Modules					1Q		
Fielding Decision, Ammunition Supply Module					1Q		
Functional Enhancements	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0303141A - Global Combat Support System</b>	<b>PROJECT</b> <b>083</b>
---------------------------------------------------------------------	------------------------------------------------------------------------------	------------------------------

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Dev, Engineering, Testing, Program Management	C/CPIF	TRW, Los Angeles, CA	0	21990	3Q	24533	3Q	28083	3Q	Continue	74606	Continue
b . New Functionalities/Web-based	C/FP	TRW, Los Angeles, CA	0	30700	3Q	44312	3Q	28085	3Q	0	103097	0
c . Integrated Concept Team	MIPR	CASCOM, Ft Lee, VA	0	1364	1Q	1165	1Q	1363	1Q	Continue	Continue	Continue
d . Software Dev	MIPR	SDC-L, Ft Lee, VA	0	2300	1Q	2300	1Q	2300	1Q	Continue	Continue	Continue
<b>Subtotal:</b>			0	56354		72310		59831		Continue	Continue	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Technical Services	C/FP	SRC, Petersburg, VA	0	2400	4Q	2400	4Q	2400	4Q	Continue	Continue	Continue
b . Engrg, Security & Testing	NA	NA	0	3050	1-2Q	3098	1-2Q	2948	1-2Q	Continue	Continue	Continue
<b>Subtotal:</b>			0	5450		5498		5348		Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303141A - Global Combat Support System**

**PROJECT**  
**083**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . AEC	MIPR	TEXCOM, Ft Hood, TX	0	4000	4Q	3500	4Q	3500	4Q	Continue	Continue	Continue
b . Ft. Hood Facility	C/FP	Killeen, TX	0	300	4Q	300	4Q	300	4Q	Continue	Continue	Continue
Subtotal:			0	4300		3800		3800		Continue	Continue	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PMO Operations	NA	NA	0	2763	1-4Q	2818	1-4Q	2885	1-4Q	Continue	Continue	Continue
Subtotal:			0	2763		2818		2885		Continue	Continue	Continue

Project Total Cost:			0	68867		84426		71864		Continue	Continue	Continue
---------------------	--	--	---	-------	--	-------	--	-------	--	----------	----------	----------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	38286	44647	72244	80999	53676	63593	108301	Continuing	Continuing
253 DSCS-DCS (PHASE II)	9519	13193	12219	13622	13669	14089	10947	Continuing	Continuing
384 SMART -T	16672	19028	17398	12173	916	0	0	0	103320
456 MILSATCOM SYSTEM ENGINEERING	5263	12426	42627	55204	39091	49504	83558	Continuing	Continuing
559 AUTO COM MGT SY (ACMS)	5854	0	0	0	0	0	0	0	19519
561 MIL INDIV COMM (MIC)	978	0	0	0	0	0	0	0	1948
562 MBAND INT SAT TERM MIST	0	0	0	0	0	0	13796	0	13942

**A. Mission Description and Budget Item Justification:** Military Satellite Communication (MILSATCOM) systems are joint program/project efforts to satisfy ground mobile requirements for each Service, the Joint Chiefs of Staff (JCS), the National Command Authority, the Commanders-In-Chief (CINCs), the National Security Agency, the Office of the Secretary of Defense, and other governmental, non-DoD users. The worldwide MILSATCOM systems are: Ultra High Frequency (UHF) Fleet Satellite/Air Force Satellite (FLTSAT/AFSAT) system; the Super High Frequency (SHF) Defense Satellite Communications System (DSCS); the Extremely High Frequency (EHF) MILSTAR system; the UHF Follow-On Satellite system; the Automated Communications Management System (ACMS); the Joint Network Planning and Central Tool; the Military Individual Communicator (MIC); and all MIL-STD-1582C compatible payloads. As the lead service for MILSATCOM Ground Subsystems, the Army is responsible for developing and procuring satellite terminals, satellite control subsystems, communication subsystems, and all related equipment. This responsibility also includes maintaining the life cycle logistics support required to achieve end-to-end connectivity, satisfying JCS Command, Control, Communications, and Intelligence (C3I) in support of the President, JCS, CINCs, Military Departments, Department of State, and other government Departments and Agencies.

This program is designated as a DoD Space Program.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002/03 PB)	42926	47647	51756
Appropriated Value	43229	44647	
Adjustments to Appropriated Value			
a. Congressional General Reductions			
b. SBIR / STTR	-1248		
c. Omnibus or Other Above Threshold Reductions			
d. Below Threshold Reprogramming			
e. Rescissions	-395		
Adjustments to Budget Years Since FY2002 PB	-3300		20488
Current Budget Submit (FY 2003 PB )	38286	44647	72244

FY03 increase of \$20.488M in Project 456 (MILSATCOM System Engineering) for Network Management tools, Integrated Ka Band capability in SHF terminals, and System Engineering IAW the DoD Transformation Comm System (TCS) Study.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>				PROJECT <b>253</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
253 DSCS-DCS (PHASE II)	9519	13193	12219	13622	13669	14089	10947	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project provides funds to develop strategic and tactical Ground Subsystem equipment in support of Joint Chiefs of Staff (JCS) validated Command, Control, Communications and Intelligence (C3I) requirements for the worldwide Super High Frequency (SHF) Defense Satellite Communications System (DSCS) and the Wideband Gapfiller System (WGS) program. Continuing upgrades for the DSCS and WGS are vital to support the emerging power projection and rapid deployment role of the Armed Forces. DSCS and WGS provide warfighters multiple channels of tactical connectivity as well as interfaces with strategic networks and national decision-makers. This system supports the legacy transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 3246 Continued the DSCS Integrated Management System (DIMS) Software program
- 4935 Continued the Common Network Planning Software (CNPS) program
- 1338 Continued SATCOM Engineering Lab (SEL), PM Admin, and Systems Engineering Technical Assistance (SETA) efforts

Total 9519

**FY 2002 Planned Program**

- 3719 Continue the DIMS Interface Software program
- 5659 Continue the CNPS program
- 2281 Continue SEL, PM Admin, and SETA efforts
- 1534 Support of CNPS development for Wideband Gapfiller System

Total 13193

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>	PROJECT <b>253</b>
--------------------------------------------------------------	--------------------------------------------------------------------------------	-----------------------

**FY 2003 Planned Program**

- 4668 Continue the DIMS Interface Software program
- 3659 Continue the CNPS program
- 2367 Continue SEL, PM Admin, and SETA efforts
- 1525 Support of CNPS development for Wideband Gapfiller System

Total 12219

<b><u>B. Other Program Funding Summary</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
Defense Satellite Communications System (DSCS)	74296	99420	89806	99547	98092	56685	52834	Continuing	Continuing
Other Procurement									

**C. Acquisition Strategy:** The DSCS Integrated Management System (DIMS) and Common Network Planning Software (CNPS) programs will not have follow-on production programs. DIMS provides the capability to electronically disseminate network plans to the monitoring and controlling DSCS Operations Control System (DOCS) subsystems, and retrieve and display subsystem monitoring data. It also provides a comprehensive view of network operations at DSCS Operations Centers and DISA management sites. CNPS will plan strategic and Ground Mobile Forces (GMF) satellite communication networks for DSCS, Wideband Gapfiller, and commercial satellites. DIMS and CNPS will be installed at DSCS Operations Centers and DISA Management Sites at worldwide locations.

<b><u>D. Schedule Profile</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
CNPS Critical Design Review (CDR)	1Q						
Complete CNPS Testing				1Q			
DIMS Version 4.0 Materiel Release	4Q						
Award Wideband Gapfiller/CNPS Mod		2Q					
DIMS Version 5.0 Software Testing - Beginning		4Q					
DIMS Version 5.0 Software Testing - Ending			2Q				
DIMS Version 5.0 Materiel Release			2Q				



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>	PROJECT <b>253</b>
--------------------------------------------------------------	--------------------------------------------------------------------------------	-----------------------

<b><u>D. Schedule Profile (continued)</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
DIMS Version 5.1 Software Testing - Beginning			2Q				
DIMS Version 5.1 Software Testing - Ending			4Q				
DIMS Version 5.1 Materiel Release				1Q			
DIMS Version 6.0 Software Testing - Beginning					4Q		
DIMS Version 6.0 Software Testing - Ending						1Q	
DIMS Version 7.0 Software Testing-Beginning							1Q

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**

**PROJECT**  
**253**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DIMS Software	C / CPFF	JHU/APL, Laurel, MD	9904	2778	1Q	3446	2Q	4072	1-2Q	Continue	Continue	Continue
b . CNPS	C / FFP	Logicon, Winter Park, FL	3654	4230	2Q	6534	2Q	4408	1-2Q	Continue	Continue	Continue
Subtotal:			13558	7008		9980		8480		Continue	Continue	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	Fort Monmouth, NJ	676	916	2Q	687	2Q	960	1-2Q	Continue	Continue	Continue
b . SETA Support	C / CPFF	Fort Monmouth, NJ	272	257	2Q	245	2Q	312	1-2Q	Continue	Continue	Continue
c . Engineering Support	C / CPFF	JHU/APL, Laurel, MD	100	0		0		100	1-2Q	Continue	Continue	Continue
d . Core Support	Various	Fort Monmouth, NJ	455	449	1-4Q	505	1-4Q	555	1-4Q	Continue	Continue	Continue
Subtotal:			1503	1622		1437		1927		Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**

**PROJECT**  
**253**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SEL	MIPR	Fort Monmouth, NJ	1816	328	2Q	1125	2Q	1125	1-2Q	Continue	Continue	Continue
Subtotal:			1816	328		1125		1125		Continue	Continue	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Admin	Various	Fort Monmouth, NJ	1369	561	1-4Q	651	1-4Q	687	1-4Q	Continue	Continue	Continue
Subtotal:			1369	561		651		687		Continue	Continue	Continue

Project Total Cost:			18246	9519		13193		12219		Continue	Continue	Continue
---------------------	--	--	-------	------	--	-------	--	-------	--	----------	----------	----------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0303142A - SATCOM Ground Environment</b> <b>(SPACE)</b>					<b>PROJECT</b> <b>384</b>			
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
384 SMART -T	16672	19028	17398	12173	916	0	0	0	103320	

**A. Mission Description and Budget Item Justification:** The Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART -T) will provide a range extension capability for the Army's Mobile Subscriber Equipment (MSE) to support the Force Projection Army. Specifically, it will provide a satellite interface to permit uninterrupted communications as our advancing forces move beyond the line-of-sight capability of MSE. This equipment will communicate at both low and medium data rates (LDR/MDR) over the MILSTAR satellite constellation. It will also be compatible with the UHF Follow-On (UFO), the Navy Fleet SATCOM EHF satellite packages, and MIL-STD-1582C compatible payloads. It will provide the security, mobility, and anti-jam capability required to defeat the threat and satisfy the critical need. The SMART-T will also have Low Probability of Interception and Low Probability of Detection (LPI/LPD), avoiding targeting for destruction, jamming, or intercept. The prime mover will be a High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) configured with all the electronics and the self-erectable antenna. In order to maintain proficiency with the terminal, given limited satellite access for training, two new EHF payload simulators are under development for training at Fort Gordon and other RDTE activity sites. The SMART-T provides mobile anti-jam reliable communications for the warfighter. Program also includes an upgrade to the SMART-T terminals to attain AEHF capability for synchronization with the National Team Schedule. This system supports the Legacy transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 262 Completed Packet DAMA development efforts and continued payload specification change development
- 2706 Continued development of AEHF satellite payload simulators
- 13704 Continued AEHF development efforts

Total 16672

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303142A - SATCOM Ground Environment  
(SPACE)**

PROJECT  
**384**

## FY 2002 Planned Program

- 1000 Continue payload specification change development
  - 2106 Continue development of AEHF satellite payload simulators
  - 15922 Continue AEHF development efforts
- Total 19028

## FY 2003 Planned Program

- 1245 Continue payload specification change development
  - 5168 Continue development of AEHF payload simulators
  - 10985 Continue AEHF development efforts
- Total 17398

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303142A - SATCOM Ground Environment  
 (SPACE)**

PROJECT  
**384**

<u>B. Other Program Funding Summary</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
SMART -T Other Procurement	31561	21704	24467	31649	35134	20075	11708	Continuing	Continuing
Spares Other Procurement	4315	569	5914	1033	6489	0	2760	0	21080

**C. Acquisition Strategy:** The SMART-T program employed a competitive development strategy. The development phase included two contractors performing under cost type contracts. The contracts were awarded on 9 November 1992 to Raytheon Company (Marlborough, MA) and Rockwell International (Richardson, TX). Twelve Engineering Development Model (EDM) terminals (6 from each contractor) were developed under the two contracts. The streamlining features of this phase included a reliability growth plan to achieve the required levels by Follow-On Test and Evaluation (FOT&E). The Low Rate Initial Production (LRIP) and Full Rate Production (FRP) contract was competitively awarded to Raytheon Company on 7 February 1996. SMART-T Milestone C Decision was successfully completed Nov 98. Award of the first FRP Option occurred in Jan 99. The total terminals procured to date through the LRIP/FRP are 141 terminals (88 Army, 29 Air Force, and 24 Marines). Additional quantities will be procured to satisfy the Army, Joint Services and other DoD activities. The development of an AEHF capability for the SMART-T terminal began in FY00, and production will begin in FY06.

<u>D. Schedule Profile</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
FOT&E	4Q						
IOC	4Q						
Continue AEHF Simulator Development	1-4Q	1-4Q	1-4Q	1-2Q			
Complete AEHF Simulator Development				3Q			
Continue AEHF Development	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Complete AEHF Development					4Q		
Continue Payload Specification Change Development	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Award Production AEHF Mod Contract						1Q	

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**

**PROJECT**  
**384**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Dual Development Contracts	C / CPIF	Rockwell Richardson, TX / Raytheon Marlborough, MA	117173	0		0		0		0	117173	0
b . Baseline Mods	SS / CPMF	Raytheon Marlborough, MA	57733	12361	3Q	15699	2Q	11404	1Q	Continue	Continue	Continue
c . Govt Support	MIPR	Various	13139	602	1Q	601	1Q	257	1Q	Continue	Continue	Continue
d . GFE	MIPR	Various	149	0		0		0		0	149	0
<b>Subtotal:</b>			188194	12963		16300		11661		Continue	Continue	Continue
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Other Contracts	MIPR	Various	11290	0		0		0		0	11290	0
b . Core Support	N/A	PM MILSATCOM Ft. Monmouth, NJ	4752	426	1Q	177	1Q	193	1Q	Continue	Continue	Continue
c . Lab Activities	MIPR	Various	6206	700	1Q	445	1Q	376	1Q	Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development**

**0303142A - SATCOM Ground Environment (SPACE)**

**384**

II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			22248	1126		622		569		Continue	Continue	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Simulator Development	MIPR	Lincoln Labs Lexington, MA	16160	2583	2Q	2106	2Q	5168	2Q	Continue	Continue	Continue
b . DT&OT Test Support	MIPR	Lincoln Labs Lexington, MA	6700	0		0		0		0	6700	0
c . Test Bed Development	MIPR	Lincoln Labs Lexington, MA	2980	0		0		0		0	2980	0
Subtotal:			25840	2583		2106		5168		Continue	Continue	Continue



## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**

**PROJECT**  
**384**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Tech Support of SMART-T Development	MIPR	Lincoln Labs Lexington, MA	7900	0		0		0		0	7900	0
Subtotal:			7900	0		0		0		0	7900	0

Project Total Cost:			244182	16672		19028		17398		Continue	Continue	Continue
---------------------	--	--	--------	-------	--	-------	--	-------	--	----------	----------	----------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0303142A - SATCOM Ground Environment</b> <b>(SPACE)</b>					<b>PROJECT</b> <b>456</b>			
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
456 MILSATCOM SYSTEM ENGINEERING	5263	12426	42627	55204	39091	49504	83558	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** The Army is responsible for developing, procuring, and maintaining the life cycle logistics support for satellite terminals, satellite control subsystems, communications subsystems, and all related equipment required to achieve end-to-end connectivity satisfying JCS Command, Control, Communications, and Intelligence (C3I) requirements. SATCOM assets also support the President, JCS, CINCs, Military Departments, Department of State, and other government Departments and Agencies. This project provides centralized funding for advanced systems engineering, analysis, research, development, test, and evaluation of new and emerging technologies, optimizing terminal performance and interoperability on the digitized battlefield. This system supports the Legacy transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 2098 Conducted various developmental efforts or analysis to provide enhanced terminal capability (Extremely High Frequency (EHF), Super High Frequency (SHF), Ultra High Frequency (UHF) and Commercial Bands)
  - 1624 Continued Battlefield Digitization architecture efforts for III Corps/IBCT
  - 1541 Advanced SATCOM architecture development and System Engineering Support (Advanced Extremely High Frequency (AEHF), Advanced Wideband (AWB) and Advanced Narrowband System/Mobile User Objective System (ANS/MUOS))
- Total 5263

**FY 2002 Planned Program**

- 2100 Conduct various developmental efforts or analysis to provide enhanced terminal capability (EHF, SHF, UHF, and Commercial Bands)
- 1241 Continue Battlefield Digitization Architecture efforts for Army Digitization and Transformation
- 1615 Conduct development, integration and fielding of interim SATCOM networking management tools and support the AEHF Management Planning Element (AMPE) development process
- 2170 Advanced SATCOM architecture development and System Engineering Support (AEHF, AWB and ANS/MUOS)

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0303142A - SATCOM Ground Environment  
(SPACE)**

PROJECT

**456**

## FY 2002 Planned Program (Continued)

- 5300 Initiate Ka band augmentation development

Total 12426

## FY 2003 Planned Program

- 3000 Conduct various developmental efforts or analysis to provide enhanced terminal capability (EHF, SHF, UHF and Commercial Bands)
- 2252 Continue Battlefield Digitation Architecture efforts for Army Digitation and Transformation
- 3492 Continue development, integration and fielding of interim SATCOM networking management tools and support the AEHF Management Planning Element (AMPE) development process
- 2795 Advanced SATCOM architecture development and System Engineering Support (AEHF, AWB and ANS/MUOS)
- 5000 System Engineering IAW the DoD Transformation Comm System (TCS) Study
- 15800 Continue development of SHF Ka band augmentation
- 9000 Initiate development of an integrated Ka band capability for Army SHF terminals
- 1288 ABCS System Engineering and Integration Efforts (SE&I)

Total 42627

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment**  
**(SPACE)**

**PROJECT**  
**456**

<b><u>B. Other Program Funding Summary</u></b>	<b>FY 2001</b>	<b>FY 2002</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>To Compl</b>	<b>Total Cost</b>
SAT TERM, EMUT Other Procurement	16941	12640	2641	5154	3448	596	0	0	47939
MOD OF IN-SVC (TAC SAT) Other Procurement	1465	2472	11002	11530	9512	10387	10443	Continuing	Continuing
SHF TERM Other Procurement	7844	100	33166	36734	42635	52700	29266	Continuing	Continuing
SMART-T Other Procurement	31561	21704	24467	31649	35134	20075	11708	Continuing	Continuing

**C. Acquisition Strategy:** This project funds advanced systems engineering, research, development, test and evaluation of new and emerging technologies to optimize terminal performance and communications control. Once the technologies are mature and deemed feasible, funding and management responsibility for implementation of the technology will transition to cognizant MILSATCOM programs.

<b><u>D. Schedule Profile</u></b>	<b>FY 2001</b>	<b>FY 2002</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>
Comm-On-The-Move (COTM) UHF Terminal Integration with Tactical Internet	1-4Q	1-2Q					
Intersegment Launch Verification (Flight 4)	2Q						
Intersegment Post Launch Verification (Flight 5)		2Q					
Intersegment Post Launch Verification (Flight 6)			1Q				
Conduct Advanced EHF and Wideband System Engineering Support	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Initiate System Engineering IAW TCS Study			1Q				
Develop Army Tactical Terminals IAW DoD TCS Requirements			2-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Conduct Integration of SATCOM Systems into Digitized Architecture	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Ka Band Augmentation Development		1-4Q	1-4Q	1-4Q			
Ka Band Integration			1-4Q	1-4Q			
Initiate Ka Band Prototype Testing				2Q			
Development/Analysis for Enhanced Terminal Capability/Interoperability (EHF/SHF/UHF-Commercial Band	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)**

**February 2002**

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>	PROJECT <b>456</b>
--------------------------------------------------------------	--------------------------------------------------------------------------------	-----------------------

<b>D. Schedule Profile (continued)</b>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Development, Integration, Milstar Communications Planning Tool - Integrated (MCPT-I) and AMPE		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**

**PROJECT**  
**456**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Terminal Upgrades	Various	Various	1524	0		0		0		0	1524	0
b . Ka Band Integration	Various	TBD	0	0		0		9000	2Q	Continue	Continue	Continue
c . Ka Band Augmentation	Various	TBD	0	0		5300	2Q	15800	2Q	Continue	Continue	Continue
d . Advanced Wideband	Various	TBD	0	0		0		5000	2Q	Continue	Continue	Continue
e . ABCS SE&I	TBD	TBS	0	0		0		1288	1Q	0	1288	0
Subtotal:			1524	0		5300		31088		Continue	Continue	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering (In-House)	MIPR	Various	3034	1026	2Q	2839	2Q	2252	2Q	Continue	Continue	Continue
b . Engineering (Contract)	Various	Various	2810	1235	2Q	1600	2Q	3537	2Q	Continue	Continue	Continue
c . System Architecture & Analysis	Various	Mitre	0	0		900	2Q	1050	2Q	Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0303142A - SATCOM Ground Environment (SPACE)</b>	<b>PROJECT</b> <b>456</b>
---------------------------------------------------------------------	-----------------------------------------------------------------------------------	------------------------------

II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			5844	2261		5339		6839		Continue	Continue	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	MIPR	Lincoln Labs, Lexington, MA	2050	619	2Q	0		500	1Q	0	3169	0
b . Test Support	Various	Various	1321	573	2Q	300	1Q	1800	2Q	Continue	Continue	Continue
Subtotal:			3371	1192		300		2300		Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**

**PROJECT**  
**456**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Advanced EHF & Architecture	MIPR	Lincoln Labs Lexington, MA	3393	1810	2Q	987	2Q	2400	2Q	Continue	Continue	Continue
b . Advanced Wideband System Architecture	MIPR	Various	0	0		500	2Q	0		0	500	0
Subtotal:			3393	1810		1487		2400		Continue	Continue	Continue
Project Total Cost:			14132	5263		12426		42627		Continue	Continue	Continue



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303150A - WWMCCS/Global Command and Control System</b>						PROJECT <b>C86</b>			
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
C86 ARMY GLOBAL C2 SYSTEM	13783	13385	17895	8406	7987	7575	7550	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** Army Global Command and Control System (AGCCS): This project is the Army component system that directly supports the implementation of the Joint Global Command and Control System (GCCS). AGCCS provides automated command and control tools for Army Strategic and Theater Commanders to enhance warfighter capabilities throughout the spectrum of conflict during joint and combined operations in support of the National Command Authority (NCA). The AGCCS-developed software systems will dramatically improve the Army's ability to analyze courses of action; develop and manage Army Forces; and ensure feasibility of war plans. The AGCCS will provide a layered architecture and functional best-of-breed software applications to develop a totally integrated component of the joint GCCS. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 2223 Performed Systems Engineering
- 9243 Continued Software Development
- 595 Performed Data Engineering
- 368 Conducted Test and Evaluation
- 300 Performed Program Support and Management Efforts
- 1054 Conducted ABCS System Engineering and Integration Efforts

Total 13783

**FY 2002 Planned Program**

- 2316 Perform Systems Engineering
- 9261 Continue Software Development
- 625 Perform Data Engineering
- 381 Conduct Test and Evaluation

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303150A - WWMCCS/Global Command and Control System</b>	PROJECT <b>C86</b>
--------------------------------------------------------------	-----------------------------------------------------------------------------------	-----------------------

**FY 2002 Planned Program (Continued)**

- 802 Perform Program Support and Management Efforts
- Total 13385

**FY 2003 Planned Program**

- 2427 Perform Systems Engineering
  - 13115 Maintain interoperability with GCCS Joint and ABCS systems, and develop Threshold (T1) Operational Requirements
  - 656 Perform Data Engineering
  - 395 Conduct Test and Evaluation
  - 842 Perform Program Support and Management Efforts
  - 460 ABCS System Engineering and Integration Efforts
- Total 17895

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	14101	13501	13123
Appropriated Value	14234	13501	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-116	0
b. SBIR / STTR	-320	0	0
c. Omnibus or Other Above Threshold Reduction	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-131	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	4772
Current Budget Submit (FY 2003 PB)	13783	13385	17895

Funding: FY 2003 (+4772) Increase for development of previously deferred Threshold (T1) Operational Requirements

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303150A - WWMCCS/Global Command and Control System</b>	PROJECT <b>C86</b>
--------------------------------------------------------------	-----------------------------------------------------------------------------------	-----------------------

<u>C. Other Program Funding Summary</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
BA8250 Army Global Cmd & Cont Sys (AGCCS)	10285	12823	21149	32765	31692	30972	29138	Continue	Continue

**D. Acquisition Strategy:** The AGCCS software integration and development effort is a multi-year incrementally funded spiral development effort. Spiral development will ensure interoperability with Joint and ABCS Systems as well as continuing development of objective Operation Requirements Document (ORD) capabilities. A hybrid (Cost-Plus-Award Fee and Firm-Fixed- Price) contract was awarded to Lockheed Martin Corporation (LMC) in December 1994. The contract consists of software development, software maintenance and relocation/de-installation of the test facility upon completion of the contract. Project Manager, Strategic Theatre Command and Control System (PM STCCS) established an Integrated Process Team (IPT) in December 1995 to review the status of software integration and develop functional deliveries. The results of the IPT were instituted providing the users of AGCCS mission software deliveries identified as Capability Package 1 (CP1) and deliveries one through four followed by required functional enhancements. CP1, which was delivered in second quarter FY 1996 and designated Initial Operational Capability (IOC) system in the fourth quarter FY 1996, provided the replacement for the Army World-Wide Military Command and Control Information System (AWIS) strategic mission support applications/software and the Army's GCCS interface to selected HQDA and FORSCOM sites. Deliveries one through four provide the integration and migration of selected Standard Theatre Army Command and Control System (STACCS), Theatre Automated Command and Control Information Management System (TACCIMS) and Combat Service Support Control System (CSSCS) Echelons Above Corps (EAC) mission support applications/software into a common baseline. Deliveries one through four have been/are being delivered to ten Army-managed sites located throughout the world. A common hardware platform will be used within the Army to implement AGCCS/GCCS. This will include products from the Army's Common Hardware/Software-2 (CHS-2) contract, which consists of Commercial Off-the-Shelf (COTS) hardware and software. The COTS hardware and software will provide computers with expanded processing, storage and communications capability, as well as office-automation and management software.

<u>E. Schedule Profile</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
ABCS/FDD Interoperability	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
AGCCS Delivery 3 Complete			1Q				
AGCCS Delivery 4 Development	1-4Q	1-4Q	1-4Q				
AGCCS Delivery 5 Development				1-4Q	1-4Q	1Q	
AGCCS Delivery 6 Development						1-4Q	1-4Q

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303150A - WWMCCS/Global Command and Control System**

**PROJECT**  
**C86**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Development	HYBRID	Lockheed Martin Corp, Springfield, VA	62618	9243	1Q	9261	1-2Q	13115	1-2Q	Continue	Continue	Continue
b . COE Support	MIPR	Various	1766	0		0		0		0	1766	1766
c . GFE	MIPR	Various	1464	0		0		0		0	1464	1465
d . ABCS System Engineering & Integration Efforts	MIPR	PEO C3S, NJ	0	1054	2Q	0		460	2Q	0	1514	1514
e . Matrix	MIPR	CECOM, NJ	2121	595	1Q	625	1-2Q	656	1-2Q	Continue	Continue	Continue
f . Product Studies	MIPR	SAIC, VA	2391	0		0		0		0	2391	2391
g . Project Management	In House	PM ATCCS, NJ	16979	2023	1-4Q	2110	1-4Q	2215	1-4Q	Continue	Continue	Continue
Subtotal:			87339	12915		11996		16446		Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303150A - WWMCCS/Global Command and Control System**

**PROJECT**  
**C86**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . FCBS/CSC	MIPR/Del Ord	Various	2389	0		0		0		0	2389	2389
b . INRI	MIPR	Various	0	200	1Q	206	1Q	212	1Q	Continue	Continue	Continue
Subtotal:			2389	200		206		212		Continue	Continue	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Government	MIPR	Various	2205	268	2Q	281	2Q	295	2Q	Continue	Continue	Continue
b . EPG	MIPR	Various	786	0		0		0		0	786	786
c . ATEC	MIPR	Various	402	100	1Q	100	1Q	100	1Q	Continue	Continue	Continue
Subtotal:			3393	368		381		395		Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303150A - WWMCCS/Global Command and Control System**

**PROJECT**  
**C86**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Office Management	In House	PM ATCCS, NJ	940	300	1-4Q	802	1-4Q	842	1-4Q	Continue	Continue	Continue
Subtotal:			940	300		802		842		Continue	Continue	Continue
Project Total Cost:			94061	13783		13385		17895		Continue	Continue	Continue

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> 7 - Operational system development				<b>PE NUMBER AND TITLE</b> 0305114A - Traffic Control, Approach and Landing System-FY 19				<b>PROJECT</b> 711		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
711 JPALS		637	777	977	972	1936	1992	0	154789	162080

**A. Mission Description and Budget Item Justification:** The Joint Precision Approach Landing System (JPALS) is a precision approach and landing system providing joint operational capability for U.S. forces assigned to conventional and special operations missions including those operating from fixed base, ship, tactical, and austere environments. This effort evaluates alternative approaches for incorporating JPALS into Army aircraft while considering aircraft environment, electrical power, system space, weight, antenna placement, and electromagnetic compatibility without nullifying low observable capability requirements. Project in this Program Element supports research efforts in the Architecture and Requirements Definition phase of the modified acquisition life cycle approved by the Defense Acquisition Executive in September of 1998. JPALS supports the Legacy-to-Objective transition path of the Transformation Campaign Plan.

**FY 2001 Accomplishments:**

- 637 Provided system engineering, logistics and technical documentation for JPALS Development effort in preparation for JPALS systems currently under development by the Air Force and the Navy for use in Army aircraft and air traffic control facilities.

Total 637

**FY 2002 Planned Program**

- 777 Continue to provide system engineering, logistics and technical documentation for JPALS development effort and execute joint Army/Navy effort to develop a JPALS capable Embedded GPS Inertial (EGI) receiver.

Total 777

**FY 2003 Planned Program**

- 977 Continue to provide system engineering, logistics and technical documentation for JPALS development effort and execute joint Army/Navy effort to develop a JPALS capable Embedded GPS Inertial (EGI) receiver.

Total 977

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305114A - Traffic Control, Approach and Landing System-FY 19**

PROJECT  
**711**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	775	785	979
Appropriated Value	783	785	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-8	0
b. SBIR / STTR	-23	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	-116	0	0
e. Rescissions	-7	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-2
Current Budget Submit (FY 2003 PB)	637	777	977

**C. Other Program Funding Summary:** JPALS is a joint program with the Air Force acting as lead service. The Army will procure local differential GPS (LDGPS) JPALS tactical and fixed base ground stations through an Air Force contract.



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0305114A - Traffic Control, Approach and Landing System-FY 19</b>	PROJECT <b>711</b>
--------------------------------------------------------------	---------------------------------------------------------------------------------------------	-----------------------

**D. Acquisition Strategy:** The acquisition strategy is to complete current risk reduction efforts and establish technical architecture and operating concept for LDGPS and legacy systems. Synchronize JPALS development and fielding with GPS Modernization timeline and M-Code development to take advantage of aircraft modification windows of opportunity. Integrate JPALS capability in the EGI and DGNS avionics and Force Modernization Fleet of helicopters.

<u>E. Schedule Profile</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Supports JPALS efforts							

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305204A - Tactical Unmanned Aerial Vehicles**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	35970	37880	46479	35260	51357	34487	28333	Continuing	Continuing
114 TACTICAL UNMANNED AERIAL VEHICLE (TUAV) (JMIP)	33705	24159	22928	11184	15631	11040	13148	Continuing	Continuing
11A ADVANCED PAYLOAD DEVELOP & SPT (JMIP)	0	11434	21250	15912	9722	990	988	0	60296
11B DTSP DEVELOPMENT (JMIP)	0	0	0	5868	23711	20107	11850	0	62100
123 JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (JMIP)	2265	2287	2301	2296	2293	2350	2347	0	16139

**A. Mission Description and Budget Item Justification:** The Tactical Unmanned Aerial Vehicle (TUAV) provides the Army with dedicated day/night reconnaissance, surveillance and target acquisition (RSTA) and intelligence. TUAV provides the tactical warfighting commander with critical battlefield information in the rapid cycle time required for success at the tactical level. The TUAV system consists of multiple air vehicles, each configured with an electro-optic (EO)/infrared (IR) sensor payload, ground control equipment (including communications equipment, launch and recovery equipment), remote video terminal, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is supported by a Maintenance Section-Multifunctional (MSM) as well as a divisional Mobile Maintenance Facility (MMF) capable of supporting up to four TUAV systems. Tactical Control System (TCS) software will be integrated with the TUAV system when available and validated. The Advanced Payload Development & Support efforts will establish the infrastructure to evaluate the maturity of the technology efforts and transition an employable TUAV capability. Development and fielding of the TRADOC System Manager (TSM) UAV's top 5 priorities include Synthetic Aperture Radio/Moving Target Indicator, Communication Relay Payload, Laser Designation, and Objective EO/IR. To support these efforts, a modeling and simulation capability/process is being developed to assess the operational benefit of these advanced technologies. Future initiatives will focus on the transition of technologies that directly supporting the Army's Objective Force, such as the development and fielding of countermine, counter camouflage, NBC and other specialty payloads as appropriate. The Joint Technology Center/System Integration Lab (JTC/SIL) is a joint integration center that develops simulations of tactical UAVs and strategic reconnaissance and imagery. It also utilizes the Modernized Imagery Exploitation System (MIES), the Enhanced Tactical Radar Correlator (ETRAC), and a variety of C4I systems and interfaces, like the TCS. The Multiple Unified Simulation Environment (MUSE) system provides for the development of real-time, interoperable hardware and operator in-the-loop simulations of multiple intelligence systems, that may be integrated with larger simulations in support of Service exercises. MUSE development provides a realistic operational environment supporting a wide range of information efforts.

TUAV was provided a supplemental fund called Defense Emergency Response Fund (DERF), as a non-add, for the following fiscal years with amounts: FY03 \$21.6M, FY04 \$32.0M, FY05 \$24.0M, FY 06 \$4.0M, and FY07 \$2.0M.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305204A - Tactical Unmanned Aerial Vehicles**

This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	34110	38210	34126
Appropriated Value	34427	38210	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-330	0
b. SBIR / STTR	0	0	0
c. Omnibus or Other Above Threshold Reprogramming	0	0	0
d. Below Threshold Reprogramming	1859	0	0
e. Rescissions	-316	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	12353
Current Budget Submit (FY 2003 PB )	35970	37880	46479

FY 03 funding was increased for Advanced Payload Development efforts.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>				PROJECT <b>114</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
114 TACTICAL UNMANNED AERIAL VEHICLE (TUAV) (JMIP)	33705	24159	22928	11184	15631	11040	13148	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Tactical Unmanned Aerial Vehicle (TUAV), provides the Army with dedicated day/night reconnaissance, surveillance and target acquisition (RSTA) and intelligence. TUAV provides the tactical warfighting commander with critical battlefield information in the rapid cycle time required for success at the tactical level. The TUAV system consists of multiple air vehicles, each configured with an electro-optic (EO)/infrared (IR) sensor payload, ground control equipment, (including communications equipment, and launch and recovery equipment), remote video terminal, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is supported by a Maintenance Section-Multifunctional, as well as a divisional Mobile Maintenance Facility capable of supporting up to four TUAV systems. Tactical Control System (TCS) software will be integrated with the TUAV system when available and validated.

This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP). The TUAV is an Objective Force system.

**FY 2001 Accomplishments:**

- 17632 Tactical UAV Low Rate Initial Production (LRIP I) Program
- 3524 Program Management Support
- 4559 Risk Reduction Testing/Development Testing
- 1980 C4I Testing
- 1000 OPTEMPO Demonstration
- 810 Data Acquisition System (DAS) Instrumentation Van
- 750 IOT&E Preparation and Support/Travel
- 1200 Advanced Payload Development / Modification / Integration
- 500 Institutional Mission Simulator (IMS)
- 250 Tactical Control System

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT

**114**

## FY 2001 Accomplishments: (Continued)

- 1500 Objective Capability Development

Total 33705

## FY 2002 Planned Program

- 3751 Program Management Support
- 1044 Objective Capability Development / C4I
- 2850 Development Testing / OPTEMPO Testing
- 1300 30 Level Maintenance Training
- 7500 Complete TUAV LRIP I Program
- 7714 IOT&E corrective action efforts and associated engineering support

Total 24159

## FY 2003 Planned Program

- 2446 Program Management Support
- 15982 Objective Capability Development for increased range and endurance (Extended Range/Multi Purpose), TCS integration, Heavy Fuel Engine
- 2500 Digital Data Link development efforts
- 2000 Objective Capability Testing

Total 22928

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT  
**114**

<u>B. Other Program Funding Summary</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
TUAV Procurement (BA0330)	47441	56860	84290	102637	56339	184442	186298	Continuing	Continuing
Initial Spares - TUAV (BS9738)	0	0	15162	15391	4062	15128	15098	0	64841

Note: Other related Navy dollars fund the development of TCS software for integration into the TUAV under this project.

**C. Acquisition Strategy:** A System Capability Demonstration (SCD) was conducted with four contractors. The results from the SCD in conjunction with proposal evaluations resulted in the competitive down select of a Best Value TUAV system. A successful Milestone II ASARC was conducted on 21 December 1999, and a TUAV LRIP contract was awarded to the AAI Corporation on 27 December 1999. In order to accelerate fielding of the TUAV system, a second LRIP for four systems was awarded on 30 March 2001 following a successful OPTEMPO test. In order to maintain accelerated fielding and continue ramp up to full rate production, a third LRIP is planned. A successful LRIP program will lead to a MS C decision and award of full rate production. Continued development of the selected TUAV system will be accomplished through a series of upgrades to incorporate improvements such as extended range and endurance, increased payload weight space and power capability, TCS, Tactical Control Data Link and advanced sensor payloads as they mature and are operationally proven.

<u>D. Schedule Profile</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
First LRIP System Delivery	1Q						
Deliver LRIP Systems to Training Base	2Q						
OPTEMPO Demonstration	2Q	1Q					
Special In-Process Review / LRIP II/ III Decision	2Q	1Q					
IOT&E Preparation and IOT&E	1-4Q	1-3Q					
Field IOT&E LRIP System to IOT&E User		4Q					
Milestone III / Production Decision		4Q					
Award Full Rate Production			1Q				
TUAV First Unit Equipped (FUE)		4Q					
Objective Capability Development / Improvements	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**114**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TUAV LRIP Program	Comp / FPIF	AAI Corporation, MD	38544	17632	1Q	7500	1Q	0		0	63676	63676
b . Government Furnished Equipment	MIPR	Various	2036	0		0		0		0	2036	2036
c . Advanced Payload Development/Modification/Integration	MIPR	PM UAV Payloads, Huntsville, AL	2918	1200	1Q	0		0		0	4118	4118
d . Digital Data Link	CPFF	Various	342	0		0		2500	1Q	0	2842	2842
e . Objective Capability Assessment/Development / C4I	Comp/FPIF	AAI Corporation, MD	500	1500	1Q	1044	2Q	15982	1Q	Continue	Continue	Continue
f . SIL/MUSE	MIPR	Sys Integration Lab, AMCOM Redstone, AL	1500	0		0		0		0	1500	1500
g . TUAV Ground Control Station Architecture	MIPR	Sys Integration Lab, AMCOM Redstone, AL	7275	0		0		0		0	7275	7275
h . Institutional Mission Simulator	MIPR	Sys Integration Lab, AMCOM Redstone, AL	2410	500	1Q	0		0		0	2910	2910
i . Tactical Control System	PWD	AMCOM RDEC Redstone, AL	450	250	1Q	0		0		0	700	700

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**114**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
j . TUAV Source Selection/System Capabilities Demo	Various	Various	7200	0		0		0		0	7200	7200
k . Army Apache/UAV Interoperability Demonstration	MIPR	AMCOM RDEC Redstone, AL	350	0		0		0		0	350	350
l . Outrider Advance Concept Technology Demonstration Bridge Contract	SS/FPIF	Alliant Techsystems, Hopkins, MN	10600	0		0		0		0	10600	10600
m . Hunter UAV non-recurring support	SS/FPIF	TRW, Sierra Vista, AZ	4140	0		0		0		0	4140	4140
n . Improved EO/IR Payload Modification/Integration Assessment for Demo on Hunter	Comp/Opt	AMCOM RDEC Redstone, AL	200	0		0		0		0	200	200
o . 30 Level Maintenance Training	Comp/FPIF	AAI Corporation, MD	0	0		1300	2Q	0		0	1300	1300
p . IOT&E Corrective Actions/Engineering Support	CPFF / PWD	Various	0	0		7714	1Q	0		0	7714	7714
<b>Subtotal:</b>			78465	21082		17558		18482		Continue	Continue	Continue



## ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development**

**0305204A - Tactical Unmanned Aerial Vehicles**

**114**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contractor Engineering Support	CPFF	Various	2420	1500	1Q	1095	1Q	746	1Q	Continue	Continue	Continue
b . Government Engineering Support	PWD	AMCOM Redstone, AL	2026	1024	1Q	900	1Q	850	1Q	Continue	Continue	Continue
Subtotal:			4446	2524		1995		1596		Continue	Continue	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Risk Reduction Testing/ST&E	MIPR	Various	8972	4559	1Q	0		0		0	13531	13531
b . Development Testing/ Objective Capability Testing / OPTEMPO Testing	MIPR	Various	0	0		2850	1Q	2000	1Q	Continue	Continue	Continue
c . C4I Testing	MIPR	Various	0	1980	1Q	0		0		0	1980	1980

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**114**

III. Test and Evaluation (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
d . OPTEMPO Demo	MIPR	Various	0	1000	1Q	0		0		0	1000	1000
e . Data Acquisition System (DAS) Instrumentation Van	MIPR	Redstone Technical Test Center, AL	0	810	1Q	0		0		0	810	810
f . IOT&E Preparation and Support/Travel	MIPR	ATEC/PM/OGA Ft. Hood, TX	0	750	1Q	0		0		0	750	750
Subtotal:			8972	9099		2850		2000		Continue	Continue	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Mgt Personnel	MIPR	PM UAV Redstone, AL	3393	1000	1Q	1756	1Q	850	1Q	Continue	Continue	Continue
Subtotal:			3393	1000		1756		850		Continue	Continue	Continue

Project Total Cost:			95276	33705		24159		22928		Continue	Continue	Continue
---------------------	--	--	-------	-------	--	-------	--	-------	--	----------	----------	----------

## ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>						<b>PROJECT</b> <b>11A</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
11A    ADVANCED PAYLOAD DEVELOP & SPT (JMIP)	0	11434	21250	15912	9722	990	988	0	60296

**A. Mission Description and Budget Item Justification:** The Shadow Tactical Unmanned Aerial Vehicle (TUAV) provides Army brigades/battalions with dedicated day/night Reconnaissance, Surveillance and Target Acquisition (RSTA) and intelligence. Additionally, the Extended Range-Multi-Purpose (ER-MP) TUAV will provide support to the Army divisions/corps with dedicated RSTA and intelligence support. Both TUAV air vehicles (with a common ground control station) will provide the tactical warfighting commander with critical battlefield information in the rapid cycle time required for success at the tactical level. Development and fielding of the Combat Developer's UAV's top 5 priorities include Synthetic Aperture Radar/Moving Target Indicator (SAR/MTI), Communication Relay Payload, Laser Designation, Advanced Electro Optical/Infrared (EO/IR) and Hyperspectral Sensor. The SAR/MTI Payload will provide a wide area search capability with a built-in imaging sensor that provides all-weather capability. This will allow for a surveillance and increased situational awareness capability. Initial SAR/MTI Payloads will be provided to those Interim Brigade Combat Teams (IBCT) which are equipped with Shadow Block II. Subsequent deliveries will support the Objective Force. The Advanced EO/IR Payload will provide RSTA and intelligence at greater standoff ranges (which improves platform survivability) at increased targeting accuracies as well as providing the foundation for broader mission applications (i.e. Rapid Terrain Visualization, Countermine, etc). The Laser Designator Payload will allow target designation for aviation forces to better engage and destroy enemy forces. This will also contribute to enhancing the survivability of aviation "manned" platforms. The Communications Relay Payload (CRP) will extend the communications links to better support forward deployed friendly forces in "deep attack" operations. This will also contribute to greater situational awareness. To support these efforts, a modeling and simulation capability/process is being developed to assess the operational benefit of these advanced technologies. Future initiatives will focus on the transition of technologies directly supporting the Army's Objective Force. These include the development and fielding of Countermine, Counter Camouflage (Hyperspectral), Nuclear, Biological and Chemical (NBC) and other specialty payloads as appropriate.

This system supports both the Interim and Objective Force transition paths of the Transformation Campaign Plan (TCP).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT  
**11A**

## FY 2002 Planned Program

- 1700 Program Management/Engineering Support.
- 8700 Continue SAR/MTI Development and Integration (initiated under Project 114) and perform SAR/MTI Military Utility Assessment
- 734 Conduct Advanced EO/IR Operational Capability Assessment and MS B decision.
- 300 Conduct Communication Relay Payload A-Kit Development.

Total 11434

## FY 2003 Planned Program

- 1900 Program Management/Engineering Support.
- 7400 Continue and complete SAR/MTI Development and Integration - includes Development Test (DT) start. Deliveries of up to nine (9) SDD Test Articles will support DT and Operational Test (OT).
- 6700 Initiate Advanced EO/IR Development and Integration.
- 3000 Initiate miniaturized Light Detection and Ranging (LIDAR) sensor package development efforts.
- 350 Continue Advanced Payload Modeling and Simulation.
- 1300 Establish Payload Test Bed to support Development Test/Operational Test (DT/OT) for Advanced Payloads. (Includes one Digital Data Link, one Ground Control Station and Aircraft/Crew Lease.) Payload Test Bed will leverage other payloads, specifically PM SW's Division Tactical UAV SIGINT Payload (DTSP).
- 600 Conduct Test Support Planning and Execution (\$300K - DT, \$300K - OT).

Total 21250

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT  
**11A**

**B. Other Program Funding Summary**

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
Advanced TUAV Payloads (B00302)	0	0	0	6256	6439	0	0	0	12695

**C. Acquisition Strategy:** 1. SAR/MTI entered MS-B in Sep 01 and will award a sole source System Development and Demonstration (SDD) contract for the Design/Modification and Integration into the TUAV in 3Q FY-02. Upon successful DT/Flight Test and MS-C decision, LRIP option will be exercised to establish initial production base in FY-04. After a successful OT (using SDD Test articles), Full Rate Production will begin with deliveries in FY-06.

2. Advanced EO/IR Payload will be pursued for the TUAV. In FY-02, this program will codify requirements, demonstrate the Advanced EO/IR capability, and conduct feasibility assessments for Laser Designator capabilities. In FY-03 award an SDD contract for the Design/Modification and Integration into the TUAV. Upon successful DT and MS-C decision, LRIP option will be exercised for articles to support deliveries in FY-05. Incorporate increased capabilities through a block upgrade approach (Laser, Countermine, etc) as the technology matures and is operational proven and demonstrated.

3. Communication Relay Payload development is being conducted by PM Tactical Radio Communication System (TRCS). This program office will support that development effort by developing the A-Kit (Integration Kit) for the CRP integration into the TUAV.

**D. Schedule Profile**

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
MS B/ SDD Decision for SAR/MTI	4Q						
Perform SAR/MTI Military Utility Assessment		2-4Q					
Award SAR/MTI SDD Contract		3Q					
Continue SAR/MTI Development and DT preparation.			1-4Q				
DT Test Article Deliveries and Testing (Limited User Test to support MS C)			4Q	1Q			
MS C/LRIP Option Exercise for SAR/MTI				2Q			
OT for SAR/MTI				4Q			
Delivery of LRIP SAR/MTI Systems					2-4Q		
Award FRP Contract for SAR/MTI					2Q		
FRP Deliveries to TUAV						3-4Q	
Conduct Operational Capabilities Assessment for Advanced EO/IR		2-4Q					

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**11A**

<b>D. Schedule Profile (continued)</b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Laser Designator Technical Feasibility Study		2-3Q					
MS B for Advanced EO/IR		4Q					
Contract Award for Advanced EO/IR SDD			2Q				
Complete DT for Advanced EO/IR				1-2Q			
MS C and exercise LRIP Option for Advanced EO/IR				2-3Q			
OT for Advanced EO/IR				4Q			
Advanced EO/IR LRIP Deliveries					2-4Q		
Advanced EO/IR FRP Contract Award					3Q		
Advanced EO/IR FRP Deliveries						3-4Q	
MS A for LIDAR		4Q					
Initiate Component Advanced Development			1-3Q				
Conduct Operational Capabilities Assessment for LIDAR			4Q				
MS B for LIDAR				1Q			

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**11A**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SAR/MTI Program	SS/CPIF	Northrop -Grumman Baltimore, MD	0	0		8700	3Q	7400	1Q	4750	20850	20850
b . Advanced EO/IR Operational Capabilities Assessment	MIPR	CECOM NVESD Ft. Belvoir, VA	0	0		734	2Q	0		0	734	2400
c . CRP A-Kit Development	MIPR	TBS	0	0		300	2Q	0		0	300	300
d . Advanced Payload Modeling and Simulation (Countermine)	FFP	TBS	0	0		0		350	2Q	100	450	450
e . Miniaturized Light Detection and Ranging Sensor Package	TBS	TBS	0	0		0		3000	2Q	Continue	Continue	Continue
f . Advanced EO/IR Program	COMP/CPFF	TBS	0	0		0		6700	2Q	6550	13250	13300
g . Advanced Payload Development (Laser, Hyperspectral, Countermine)	TBS	TBS	0	0		0		0		5160	5160	5160
Subtotal:			0	0		9734		17450		Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**11A**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering Support	CPEF/PWD	Various	0	0		1500	1-4Q	1700	1-4Q	3400	6600	6600
Subtotal:			0	0		1500		1700		3400	6600	6600

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Bed/Data Link/Ground Display/Lease/Engineering Support	TBS	TBS	0	0		0		1300	2Q	2440	3740	3740
b . SAR/MTI DT Support	TBS	TBS	0	0		0		300	4Q	1000	1300	1300
c . SAR/MTI OT Support	TBS	TBS	0	0		0		300	4Q	1000	1300	1300
Subtotal:			0	0		0		1900		4440	6340	6340



## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**11A**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Mgt Personnel	In House	PM UAV Payloads, Ft. Monmouth, NJ	0	0		200	1-4Q	200	1-4Q	400	800	800
Subtotal:			0	0		200		200		400	800	800

Project Total Cost:			0	0		11434		21250		Continue	Continue	Continue
---------------------	--	--	---	---	--	-------	--	-------	--	----------	----------	----------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>				PROJECT <b>123</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
123 JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (JMIP)	2265	2287	2301	2296	2293	2350	2347	0	16139

**A. Mission Description and Budget Item Justification:** The Joint Technology Center/System Integration Laboratory (JTC/SIL) is a joint facility that develops, integrates and supports the enhancement of its Multiple Unified Simulation Environment (MUSE) capability for Army systems and operational concepts. The JTC/SIL conducts prototype hardware and software development (i.e. TUAV Tactical Unmanned Control System (TUACS), TUAV Institutional Mission Simulation (IMS) Trainer, TUAV C4I module), modeling and simulation support. The MUSE develops real-time, operator in-the-loop simulations that are capable of tactical Hardware-In-the-Loop (HWIL) interoperability for multiple intelligence systems, that may be integrated with larger simulations in support of Service training and exercises. MUSE provides a realistic operational environment, supporting a wide range of C4I applications. This project funds the management of the JTC/SIL and MUSE enhancements.

This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 143 Initiate Moving Target Indicator/Fixed Target Indicator (MTI/FTI) Sensor Simulation Development/Upgrade Synthetic Aperture Radar (SAR) Simulation
- 240 MUSE Remote Support Capability
- 75 Provide Direct Joint Surveillance Target Attack Radar System (JSTARS) Common Ground Station (CGS) Interface
- 235 Develop MUSE Fixed Target Damage State Visualization
- 75 Technical Support of MUSE Integration with Intelligence Electronic Warfare Tactical Proficiency Trainer (IEWTPT)
- 119 Upgrade High Level Architecture (HLA) Certification and DOD Information Technology Security Certification & Accreditation Process (DITSCAP)
- 237 MUSE Hardware Consolidation into Single PC-Based Platform
- 83 Develop and Upgrade Terrain and Target Databases
- 155 Initiate MUSE TUAV Flight Performance Model Verification and Validation Process

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT

**123**

## FY 2001 Accomplishments: (Continued)

- 160 Provide MUSE Configuration Management and Help Desk Services
  - 542 MUSE Equipment
  - 201 JTC/SIL Management
- Total 2265

## FY 2002 Planned Program

- 150 Develop and integrate Tactical Common Data Link into MUSE in support TUAV ORD
  - 240 Develop and upgrade Terrain and Target databases
  - 175 MUSE Remote Support Capability
  - 120 Upgrade HLA Certification and DITSCAP
  - 50 Technical support of MUSE integration with IEWTPT
  - 190 MUSE TUAV Flight Performance Model Verification and Validation Process
  - 300 MUSE Configuration Management and Help Desk Services
  - 785 MUSE Equipment
  - 277 JTC/SIL Management
- Total 2287

## FY 2003 Planned Program

- 200 Incorporate new technology sensors and platforms into the MUSE
- 290 Develop and Upgrade Terrain and Target Databases
- 125 Integrate Weapon Employment Capabilities into MUSE
- 50 Technical support of MUSE integration with IEWTPT
- 105 Evaluate and integrate New Visualization Technologies into MUSE

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT  
**123**

**FY 2003 Planned Program (Continued)**

- 120 Upgrade HLA Certification and DITSCAP
- 120 MUSE TUAV Flight Performance Model and Verification and Validation Process
- 240 MUSE Configuration management and Help Desk Services
- 758 MUSE Equipment
- 293 JTC/SIL Management

Total 2301

**B. Other Program Funding Summary:** Not applicable for this item.

Other Air Force and Navy funds are provided for the development of JTC/SIL MUSE.

**C. Acquisition Strategy:** Continued MUSE development will be accomplished through a combination of Government in-house functional directorate support and contractor support using a variety of existing RDEC contract vehicles and the OMNIBUS 2000 contract.

<b><u>D. Schedule Profile</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
JTC/SIL MUSE Enhancement and Management	2-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**123**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Initiate MTI/FTI Sensor Sim Develop/Upgrade SAR	SS/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	0	143	3Q	0		0		0	143	143
b . MUSE Remote Support Capability	SS/CPFF	GDIS/Arlington, VA	0	240	3Q	175	1Q	0		0	415	415
c . Develop MUSE Fixed Target Damage Site Visualization	SS/CPFF	GDIS/Arlington, VA	0	235	3Q	0		0		0	235	235
d . Upgrade HLA Certification for DITSCAP	SS/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	0	119	3Q	120	1Q	120	1Q	318	677	677
e . MUSE Equipment	C/FFP	Various	0	432	3Q	627	1Q	608	1Q	1611	3278	3278
f . MUSE Hardware Consolidation into Single PC-Based Platform	SS/CPFF	GDIS/Arlington, VA	0	237	3Q	0		0		0	237	237
g . Develop & Integrate TC DL into MUSE in Support of TUAV ORD	SS/CPFF	GDIS/Arlington, VA	0	0		150	1Q	0		0	150	150
h . Develop & Upgrade Terrain & Target Databases	SS/CPFF	Quality Research Institute/HSV, AL	0	83	4Q	240	1Q	290	1Q	768	1381	1381

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**123**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
i . Incorporate New Technology Sensors & Platforms into MUSE	SS/CPFF	GDIS/Arlington, VA	0	0		0		100	1Q	1324	1424	1424
j . Integrate Weapon Employment Capabilities into MUSE	C/FFP	TBD	0	0		0		125	1Q	596	721	721
k . Evaluate and Integrate New Visualization Technologies into MUSE	C/FFP	TBD	0	0		0		105	1Q	530	635	635
Subtotal:			0	1489		1312		1348		5147	9296	9296

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**123**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Provide Direct JSTARS CGS Interface	SS/CPFF	GDIS/Arlington, VA	0	75	3Q	0		0		0	75	75
b . Technical Support of MUSE Integration with IEWTPT	C/CPFF	GDIS/Arlington, VA	0	75	3Q	50	1Q	50	1Q	132	307	307
c . Initiate MUSE TUAV Flight Performance Model V&V Process	C/CPFF	Dynetics/Huntsville, AL	0	155	3Q	190	1Q	120	1Q	530	995	995
d . Provide MUSE Configuration Mgt and Help Desk Services	C/CPFF	GDIS, Arlington, VA	0	160	3Q	300	1Q	240	1Q	795	1495	1495
e . JTC/SIL Management	C/CPFF	TBD	0	0		60	1Q	60	1Q	238	358	358
f . MUSE Equipment	C/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	0	110	3Q	158	1Q	150	1Q	424	842	842
g . Incorporate New Technology Sensors & Platforms into MUSE	C/CPFF	SAIC/Huntsville, AL	0	0		0		100	1Q	530	630	630
<b>Subtotal:</b>			0	575		758		720		2649	4702	4702

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**123**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Product Evaluation	TBD	TBD	0	0		0		0		132	132	132
Subtotal:			0	0		0		0		132	132	132

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . JTC/SIL Management Personnel	In House	JTC/SIL/Redstone Arsenal, AL	0	201	2-4Q	217	1-4Q	233	1-4Q	1324	1975	1999
Subtotal:			0	201		217		233		1324	1975	1999

Project Total Cost:			0	2265		2287		2301		9252	16105	16129
---------------------	--	--	---	------	--	------	--	------	--	------	-------	-------



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>				<b>PE NUMBER AND TITLE</b> <b>0305206A - Airborne Reconnaissance Adv Development</b>				<b>PROJECT</b> <b>K98</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
K98 MASINT SENSOR INTEGRATION (JMIP)		4864	10972	4882	4832	5182	5473	5561	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project continues development of advanced tactical reconnaissance and surveillance sensor technologies and develops technology for the on-board fusion of multidiscipline intelligence sensors, i.e. Signals Intelligence (SIGINT), Moving Target Indicator/Synthetic Aperture (MTI/SAR) Radar, and Measure and Signature Intelligence (MASINT). Hyperspectral, multi-spectral, interferometric synthetic aperture radar sensors, advanced target and image exploitation software will be developed for imagery intelligence (IMINT) and MASINT applications. The Hyperspectral Longwave Imager for the Tactical Environment (HyLITE) develops the next generation airborne day/night hyperspectral reconnaissance sensor for the detection and identification of camouflaged and concealed targets in all terrain environments. The Signals Warfare Project Office will develop MASINT/IMINT technologies for Aerial Common Sensor (ACS). The Interferometric Synthetic Aperture Radar (IFSAR) Program provides the capability to rapidly generate three-dimensional (3-D) high resolution Digital Terrain Elevation Data (DTED III-V). This data will be used in the generation of high-resolution digital terrain databases to support crisis response and force projection operations within the joint force commander timelines. The IFSAR development supports the Rapid Terrain Visualization (RTV) Advanced Concept Technology Demonstration (ACTD). Future efforts will be directed toward the development of advanced multi-mode Electrooptic/Infrared (EO/IR), multi-mode MTI/SAR radar, foliage penetration radar, multi-spectral/hyperspectral imageries (MSI/HSI), MASINT on-board fusion and registration, and cueing of the EO/IR/SAR/HSI imaging sensor. FY02/03 funds continue MTI/SAR and MSI/HSI technology development and supports the integration of these for system demonstrations.

MASINT was provided a supplemental fund called Defense Emergency Response Fund (DERF), as a non-add, for the following fiscal years with amounts: FY03 \$3.0M, FY04 \$3.0M, FY05 2.0M, and FY06 \$2.0M.

This system supports the Objective transition path of the Transformation Campaign Path (TCP).

**FY 2001 Accomplishments:**

- 1905 -Completed CDR of HyLITE system  
-Conducted fabrication of HyLITE spectrometer components  
-Conducted an IPT to discover and remedy problems with detector/ROIC hybrid (HyLITE)  
-Conducted spectral algorithm development for HyLITE day/night system
- 2959 -Collected IFSAR data and developed/processed high resolution data sets over several CONUS sites and 2ID OCONUS Areas of Interest

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)****February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development****0305206A - Airborne Reconnaissance Adv  
Development****K98****FY 2001 Accomplishments: (Continued)**

-Completed evaluation of military utility of IFSAR sensor, data, Rapid Terrain Visualization (RTV) process and products with XVIII ABN, III Corp and Eighth USA

Total 4864

**FY 2002 Planned Program**

- 6069 -Complete fabrication of HyLITE system
  - Conduct HyLITE system characterization, day/night data collections and real-time demonstration
  - Conduct HyLITE algorithm development, data and target detection performance analysis
  - Restart HyLITE stabilization and midwave high-resolution imager efforts for tactical capability
- 4903 -Award ACS technology contract(s) for the development of multi-mode MTI/SAR/MSI/HSI/EO/IR capabilities

Total 10972

**FY 2003 Planned Program**

- 3682 -Continue development of technologies for MTI/SAR/MSI/HSI/EO/IR capabilities (ACS)
- 1200 -Begin integration of spiral developed MTI/SAR/MSI/HSI/EO/IR capabilities into the system integration/demonstration ACS program phase (ACS)

Total 4882

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305206A - Airborne Reconnaissance Adv**  
**Development**

**PROJECT**  
**K98**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	4852	6862	4894
Appropriated Value	4898	11062	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-90	0
b. SBIR / STTR	0	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-34	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-12
Current Budget Submit (FY 2003 PB)	4864	10972	4882

Note: FY02 increase of \$4.2M for Hyperspectral long-wave imager.

<u><b>C. Other Program Funding Summary</b></u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
0305206D00000 DARPA (ASRP)	100	0	0	0	0	0	0	0	1250
63734/T12 Rapid Terrain Visualization	0	0	0	0	0	0	0	0	11693
0203744A/028 ACS	13162	14531	49748	78305	87806	74501	8947	Continue	Continue
A02005 Aerial Common Sensor	0	0	0	0	0	0	89289	Continue	Continue

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305206A - Airborne Reconnaissance Adv**  
**Development**

**PROJECT**  
**K98**

**D. Acquisition Strategy:** The HyLITE system acquisition strategy provided for the award of an R&D effort beginning in FY 1999 under best value full and open competition procedures. Data collection efforts to support analytic studies began in FY1998 using existing sensor and hardware integrated on a NVESD testbed aircraft. The MTI/SAR/MSI/HSI and multi-sensor technologies to be developed are those that are identified and found critical to the Aerial Common Sensor (ACS) program based upon the ACS Concept Exploration (CE) Phase. The ACS CE phase completes in 1QFY02. It is the intent, based on competitive solicitation, to award a contract(s) for the development of these technologies that will provide yearly demonstration of the technologies and transition into the ACS baseline program.

<b><u>E. Schedule Profile</u></b>	<b><u>FY 2001</u></b>	<b><u>FY 2002</u></b>	<b><u>FY 2003</u></b>	<b><u>FY 2004</u></b>	<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>
XVIII Airborne Corps WFX; Interferometric Synthetic Aperture Radar (IFSAR)	3Q						
Functional Capability Demo at JPSD IEC (IFSAR)	3Q						
End to End Demonstration (IFSAR)	4Q						
Provide Leave Behind Support (IFSAR)	1-4Q						
Develop HyLITE	1-4Q	1-3Q					
HyLITE Algorithm Design/Implementation (day/night) and analysis	2-4Q	1-4Q	1-2Q				
HyLITE Aircraft Integration		3-4Q					
HyLITE Test and Demonstrate		3-4Q	1-2Q				
HyLITE tactical capability (stabilization and MW imager)		2-4Q	1-2Q				
ACS MTI/SAR/MSI/HSI/EO/IR technology contract		2-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
ACS MTI/SAR/MSI/HSI/EO/IR technology demonstrations			3-4Q	4Q	4Q	4Q	4Q
ACS MS B Decision Review			3Q				

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305206A - Airborne Reconnaissance Adv Development**

**PROJECT**  
**K98**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Labor; IFSAR	FF/SS/MIPR	Sandia Nat'l Labs, CA	1041	442	1Q	0		0		0	1483	1483
b . Travel; IFSAR	FF/SS/MIPR	Sandia Nat'l Labs, CA	89	38	1Q	0		0		0	127	127
c . Systems Management; IFSAR	FF/SS/MIPR	Sandia Nat'l Labs, CA	1395	595	1Q	0		0		0	1990	1990
d . Systems Engineering ; IFSAR	FF/SS/MIPR	Sandia Nat'l Labs, CA	1681	726	1Q	0		0		0	2407	2407
e . Software Engineering ; IFSAR	FF/SS/MIPR	Sandia Nat'l Labs, CA	206	183	1Q	0		0		0	389	389
f . Development Support; HyLITE	C/CPFF	BAE Systems, NY	4506	1471	1Q	4139	1-2Q	0		0	10116	10116
g . ACS Technology contract for MTI/SAR/MIS/HSI/EO/IR	C-CPXF	TBD	0	0		4628	2Q	4103	1Q	Continue	Continue	Continue
Subtotal:			8918	3455		8767		4103		Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305206A - Airborne Reconnaissance Adv Development**

**PROJECT**  
**K98**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Systems Engineering IFSAR	MIPR	Sandia Nat'l Labs, CA	400	0		0		0		0	400	400
b . Testing Support; IFSAR	MIPR	Sandia Nat'l Labs, CA	75	0		0		0		0	75	75
c . Technical Support; IFSAR	MIPR	Sandia Nat'l Labs, CA	15	45	1Q	0		0		0	60	60
d . Configuration Mgt.; IFSAR	MIPR	Sandia Nat'l Labs, CA	15	45	1Q	0		0		0	60	60
e . Equipment; IFSAR	MIPR	Sandia Nat'l Labs, CA	105	45	1Q	0		0		0	150	150
f . System Engineering; HyLITE	C/T&M	EOIR, Fredricksburg VA	840	75	1Q	700	2Q	0		0	1615	1615
g . Technical Support; HyLITE	C/T&M	SAIC Corp, San Diego, CA	150	78	1Q	0		0		0	228	228
h . Technical Support; HyLITE	C/T&M	IDA; Washington, DC	60	100		100	2Q	0		0	260	260
Subtotal:			1660	388		800		0		0	2848	2848

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305206A - Airborne Reconnaissance Adv Development**

**PROJECT**  
**K98**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Systems Evaluation; IFSAR	MIPR	Sandia Nat'l Labs, CA	980	420	1Q	0		0		0	1400	1400
b . Systems Evaluation: HyLITE	MIPR	BCBL; Ft. Huachuca AZ	10	0		0		0		0	10	10
c . Test & Demonstration; HyLITE	MIPR	CECOM; NVSED, NJ	142	0		780	2Q	0		0	922	922
d . ACS Integration and Demonstration of MTI/SAR/MSI/HSI/EO/IR technologies	Multiple	TBD	0	0		0		500	1Q	Continue	Continue	Continue
<b>Subtotal:</b>			1132	420		780		500		Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305206A - Airborne Reconnaissance Adv Development**

**PROJECT**  
**K98**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management; IFSAR	MIPR	Sandia Nat'l Labs	398	70	1Q	0		0		0	468	468
b . Government Engineering Support; IFSAR	MIPR	CECOM, NVESD	715	350	1Q	0		0		0	1065	1065
c . Program & Engineering Support; HyLITE	MIPR	CECOM; NVESD	734	181	1Q	350	2Q	0		0	1265	1265
d . ACS Program & Engineering Support; MTI/SAR/MSI/HSI/EO/IR	MIPR	CECOM; I2WD	0	0		275	1Q	279	1Q	Continue	Continue	Continue
<b>Subtotal:</b>			1847	601		625		279		Continue	Continue	Continue
<b>Project Total Cost:</b>			13557	4864		10972		4882		Continue	Continue	Continue



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0305208A - Distributed Common Ground Systems (JMIP)</b>						<b>PROJECT</b> <b>956</b>		
COST (In Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
956	DISTRIBUTED COMMON GROUND SYSTEM (DCGS) (JMIP)	7839	72095	15683	15911	15625	45089	12933	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project supports the system development and demonstration of the Distributed Common Ground Station, Army (DCGS-A). DCGS-A supports network centric warfare through sharing and distribution of timely, multi-INT battle management and targeting collection sensors information to Land Commanders at all echelons as well as to other services. Advanced networking, sensor connectivity, cross-cueing, data sharing and processing will provide commanders, a common view and understanding of the battlefield and access to Intelligence Reconnaissance and Surveillance (ISR) data and products currently only available within echelons, from a specific ISR ground station, or not time relevant. Modular and scalable components will provide flexibility for tailoring and deploying assets and capabilities in support of all types of units of employment/action and across a broad spectrum of conflicts. This project integrates and networks capabilities existent in multiple intelligence ground stations to include Tactical Exploitation System (TES), Guardrail Information Node (GR/IFN), ASAS Block II, Tactical UAV Ground Control Station (GCS), Counterintelligence/Human Intelligence Information Management Systems (CHIMS) and Common Ground Station (CGS). These efforts are now networked in this project and will provide common unified software and hardware infrastructure, which will enable Commanders' and Staffs' access to ISR ground stations information from any one ground station and data exchange amongst Army ISR ground stations for improved intelligence sharing and understanding in support of Commanders, ensure increased interoperability with other Services and reduce forward footprint and logistics burden for the Army, all critical transformation objectives. The Interim DCGS-A system will be demonstrated at the XVIII Airborne Corps in FY03 and fielded to III Corps in FY04. During this timeframe, legacy systems (TES, GR/IFN, ASAS, TUAV GCS, CHIMS and CGS) will remain operational worldwide. Therefore, the PE/SSNs for these legacy systems will remain in place to support these efforts until Objective DCGS-A is fielded. This project also supports the engineering development and acquisition of Army Common Imagery Ground/Surface Systems (CIG/SS). The objective of CIG/SS is to enable all systems to receive, process, exploit, and report any imagery source regardless of platform or sensor type to meet the intelligence and targeting needs of tactical commanders. The CIG/SS project provides the warfighter with an integrated and interoperable airborne reconnaissance imagery processing and exploitation capability that can be tailored for all levels of conflict. This project also incorporates Army funds originally divested from Defense Airborne Reconnaissance Program (DARP) for the imagery portion of the TES. TES provides the commander with maximum flexibility to satisfy intelligence needs under a wide range of operational scenarios. TES operators can perform multiple imagery Intelligence (IMINT), Signal Intelligence (SIGINT), cross-intelligence, or dissemination functions from any workstation.

DCGS was provided a supplemental fund called Defense Emergency Response Fund (DERF), as a non-add, for FY02 in the amount of \$34.9M to accelerate I-DCGS-A capability to XVIII Airborne and III Corps.

DCGS was also provided DERF funds, as a non-add, for the following fiscal years with amounts: FY03 \$21.7M, FY04 \$19.2M, FY05 \$28.2M, FY06 \$31.7M and FY07 \$17.0M.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0305208A - Distributed Common Ground Systems  
(JMIP)**

PROJECT

**956**

DCGS-A supports the Objective transition path of the Army Transformation Campaign Path (TCP).

### FY 2001 Accomplishments:

- 1000 Continued CIG/SS element engineering to implement software upgrades, and enhancements to maintain compatibility with changing the national and tactical interfaces (MIES) Modernized Imagery Exploitation System.
- 540 Advanced Synthetic Aperture Radar (ASAR) Improvement Program (AIP) upgrades into TES.
- 6299 Continued CIG/SS element engineering to implement software upgrades, and enhancements to maintain compatibility with changing the national and tactical interfaces (TES).

Total 7839

### FY 2002 Planned Program

- 7492 Continue CIG/SS element engineering to implement software upgrades, and enhancements to maintain compatibility with changing the national and tactical interfaces (TES)
- 750 AIP Upgrades into TES
- 12500 Tactical Exploitation System - Main (TES-M) to III Corps - key element of Interim DCGS-A Architecture
- 15000 Fabrication, integration, test and fielding of a Guardrail Information Node (GRIFN) to replace the GR/CS Integrated Processing Facility (IPF) as a part of Interim DCGS-A architecture to be fielded to III Corps.
- 5000 Development of TES/GRIFN/CGS/CHIMS interfaces and exchange requirements for Interim DCGS-A.
- 7000 Studies and analysis for Objective DCGS-A with an emphasis on the necessary communications/dissemination infrastructure, trade off analysis, database structure, and data element synchronization
- 10600 Conduct non-recurring engineering (NRE) to segment the Tactical Control Station / Moving Target Indicator (TCS/MTI) code.
- 5300 Develop and integrate the appropriate motion imagery capabilities into application subsets.
- 5453 Conduct NRE for common processing, exploitation and visualization application segments in an effort to derive a uniform application/toolset across the Army and among Other Services.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305208A - Distributed Common Ground Systems**  
**(JMIP)**

**PROJECT**  
**956**

**FY 2002 Planned Program (Continued)**

- 3000 Development of Tactics, Techniques and Procedures (TTPs) and associated developmental, operational and interoperability (Joint Interoperability Test Center - JITC) testing.

Total 72095

**FY 2003 Planned Program**

- 8319 Continue CIG/SS element engineering to implement software upgrades, and enhancements to maintain compatibility with changing the national and tactical interfaces (TES).
- 2000 Implement TES-MAIN/GRIFN/CGS/CHIMS interfaces and data access and/or exchange capabilities at III Corps and XVIII Airborne.
- 2732 Initiate design & co-site interference analysis for integration of next generation high speed data link components
- 1455 Analyze data dissemination & collaboration alternatives for operations
- 1177 Expand interoperability and data base leveling with other service DCGS components

Total 15683

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	7821	85242	8313
Appropriated Value	7894	72742	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-647	0
b. SBIR / STTR	0	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	17	0	0
e. Rescissions	-72	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	7370
Current Budget Submit (FY 2003 PB)	7839	72095	15683

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305208A - Distributed Common Ground Systems (JMIP)**

PROJECT  
**956**

<u>C. Other Program Funding Summary</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
PE 0603766A Tactical Surveillance Systems Project 907 (TIARA)	0	16605	16392	17396	16369	15248	16888	Continue	Continue
PE 0604766A TES/DCGS-A Project D909 (TIARA)	43087	0	239	219	217	210	204	0	116055
BZ7315 TENCAP (TIARA)	12735	0	0	0	0	5933	0	0	23019
BZ7316 CIG/SS (JMIP)	2807	2591	2617	2656	2713	999	64753	Continue	Continue
BZ7317 Tactical Exploitation System (TIARA) *1	0	33410	17576	43675	18880	6008	7039	Continue	Continue
APA AZ2000 Guardrail Mods (TIARA) (DCGS-A GRIFN MDEP FPD Only) *2	0	0	0	4966	4953	1098	0	0	11017
PE 0604766A Tactical Exploitation System (TES) / DCGS-A 957	14780	59693	56423	59851	48636	42250	42080	Continue	Continue
PE 0604770 Army Common Ground Station (CGS) (202)	28133	8026	4740	4939	6267	6184	5817	0	64106
BA1080, Army Common Ground Station (CGS)	65806	21141	8620	8438	0	0	0	Continue	Continue
PE 0604321 CI/HUMINT Software Products (B41) (TIARA)	1815	2336	2361	3225	2431	2989	5192	0	20349
BK5275 CI HUMINT Info Management System	3000	2472	9735	9980	4953	5094	9826	0	45060

**C. Other Program Funding Summary:** \*1 Congress reprogrammed \$7.5 M from PE 305208, Project 956 into OPA BZ7317 for DCGS-A capability.

\*2 Congress reprogrammed \$5.0 M from PE 305208, Project 956 into APA AZ2000 for DCGS-A capability.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305208A - Distributed Common Ground Systems**  
**(JMIP)**

**PROJECT**  
**956**

**D. Acquisition Strategy:** The Interim DCGS-A program will be awarded primarily to Prime Contractors of the legacy systems collaborating together to establish the necessary interfaces and data sharing capabilities. As the program moves into the Objective phase, we will pursue competitive developments to enable maximum industry participation to acquire robust processing, exploitation, analysis and visualization applications and supporting hardware capable of consequentially reducing ground stations footprint with increased processing capabilities.

<b><u>E. Schedule Profile</u></b>	<b><u>FY 2001</u></b>	<b><u>FY 2002</u></b>	<b><u>FY 2003</u></b>	<b><u>FY 2004</u></b>	<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>
Development of TES Main to III Corps		3-4Q	1-2Q				
Guardrail Information Node (GRIFN) component of DCGS-A		3-4Q	1-2Q				
Integration of Common Ground Station (CGS) /CHIMS capability into Interim DCGS-A		3-4Q	1-2Q				
TES and GRIFN integration		3-4Q	1-2Q				
Milestone B for Objective DCGS-A			3Q				
Objective DCGS-A (O-DCGS-A) requirements development		2-4Q	1-2Q				
Award development contracts for O-DCGS-A			3Q				
Interim DCGS-A demonstration at XVIII Airborne			4Q				
Interim DCGS-A fielding to III Corps				4Q			
Field Imagery portion of TES #2 - #6 *	4Q	4Q	4Q	4Q	4Q	4Q	4Q

\* The majority of TES system funding is under PE 0604766A (TES/DCGS-A)

## ARMY RDT&E COST ANALYSIS(R-3)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305208A - Distributed Common Ground Systems (JMIP)**      **PROJECT 956**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ETRAC CIG/SS	C/CPAF	Northrop Grumman, Linthicum, MD	5537	0		0		0		0	5537	5537
b . MIES CIG/SS	SS/CPFF	DBA, Melbourne FL	3187	1000	1Q	0		0		0	4187	4187
c . TES CIG/SS *	C/CPFF	Northrop Grumman, Linthicum, MD	7855	6839	2Q	8242	2Q	8319	3Q	Continue	Continue	Continue
d . III Corps TES MAIN	C/CPFF	Northrop Grumman, Linthicum, MD	0	0		12500	2Q	0		0	12500	12500
e . GR/IFN component of DCGS-A	SS/CPFF	TRW, Sunnyvale, CA	0	0		15000	2Q	0		0	15000	15000
f . TES/GRIFN/CGS/CHIMS interface	C/CPFF	Northrop Grumman, Linthicum, MD, TRW, Sunnyvale,CA, General Dynamics, Scottsdale, AZ	0	0		5000	2Q	0		0	5000	5000
g . Software Segmentation	SS/CPFF	General Dynamics, Scottsdale, AZ	0	0		11700	2Q	0		0	11700	11700
h . Software Integration	CP	Northrup Grumman, Baltimore, MD	0	0		1300	2Q	0		0	1300	1300
i . Software Integration	T&M	TRW, Sunnyvale, CA	0	0		1100	2Q	0		0	1100	1100

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305208A - Distributed Common Ground Systems (JMIP)**

**PROJECT**  
**956**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
j . Software Integration	T&M	Lockheed Martin, Denver, CO	0	0		1100	2Q	0		0	1100	1100
k . Software Development	T&M	Northrup Grumman, Baltimore, MD	0	0		1800	2Q	0		0	1800	1800
l . Exploitation	TBD	TBD	0	0		1600	2Q	0		0	1600	1600
m . Visualization	TBD	TBD	0	0		1853	2Q	0		0	1853	1853
n . III Corps TES/GRIFN Interface	TBD	TBD	0	0		0		2000	1Q	0	2000	2000
o . Data link components	TBD	TBD	0	0		0		2768	1Q	0	2768	2768
p . Data dissemination & collaboration alternatives	TBD	TBD	0	0		0		1419	1Q	0	1419	1419
q . Expand interoperability & data base leveling	TBD	TBD	0	0		0		1177	1Q	0	1177	1177
Subtotal:			16579	7839		61195		15683		Continue	Continue	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development**

**0305208A - Distributed Common Ground Systems (JMIP)**

**956**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DCGS Imagery IPT	MIPR	Various	0	0		700	2Q	0		0	700	700
b . Objective Doctrine/TTP Development To Support a Milestone B for ODCGS-A	MIPR	Ft. Huachuca, AZ	0	0		1000	2Q	0		0	1000	1000
c . Objective Architecture Development To Support a Milestone B for ODCGS-A	MIPR	Ft. Huachuca, AZ	0	0		2400	3Q	0		0	2400	2400
d . CONOPS & TTP Refinement	MIPR	Ft. Huachuca, AZ	0	0		1500	3Q	0		0	1500	1500
e . Communications/Dissemination Trade Study	MIPR	DCSINT, VA	0	0		2000	2Q	0		0	2000	2000
Subtotal:			0	0		7600		0		0	7600	7600



## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305208A - Distributed Common Ground Systems (JMIP)**      **PROJECT 956**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Operational Testing	MIPR	USAIC&FH Battlelab, AZ	0	0		200	2Q	0		0	200	200
b . Integrated Developmental Testing	TBD	TBD	0	0		700	2Q	0		0	700	700
c . Operational Testing	MIPR	ATEC, MD	0	0		800	3Q	0		0	800	800
d . Interoperability Certification Update	MIPR	JTIC, Ft. Huachuca, AZ	0	0		500	3Q	0		0	500	500
e . Participation in O-DCGS- A Planning and Documentation for Milestone B	MIPR	Various	0	0		1100	2Q	0		0	1100	1100
<b>Subtotal:</b>			0	0		3300		0		0	3300	3300

# ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305208A - Distributed Common Ground Systems (JMIP)**

**PROJECT**  
**956**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:												

Project Total Cost:			16579	7839		72095		15683		Continue	Continue	Continue
---------------------	--	--	-------	------	--	-------	--	-------	--	----------	----------	----------

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	62955	99505	57825	7701	6410	10085	11367	0	345725
090 MLRS HIMARS	46189	50703	24510	2993	1984	0	0	0	166510
093 MLRS JOINT TECH ARCHITECTURE	0	1527	6723	4600	2100	1090	0	0	21287
784 GUIDED MLRS	16766	47275	26592	108	2326	8995	11367	0	157928

**A. Mission Description and Budget Item Justification:** The Multiple Launch Rocket System (MLRS) upgrade (M270A1 and Guided MLRS (GMLRS)) is an Legacy to Objective force missile system that provides precision strike and is essential due to the expansion of regional power threats. This Product Improvement Program (PIP) provides for the maturation of a High Mobility Artillery Rocket System (HIMARS), the Joint Technical Architecture-Army (JTA-A), and the System Development and Demonstration (SDD) of a Guided MLRS (GMLRS) Rocket. The HIMARS will replace M198 towed howitzer and M270 Launchers and allow MLRS capability to be C-130 transportable, mounting one rocket or missile pod on a 5-ton truck. It gives early entry forces immediate fire support within a hot landing zone without waiting for heavy-lift aircraft. The JTA-A will implement the capability for situational awareness in M270A1 and HIMARS launchers and trainers. A multinational GMLRS program will greatly enhance the capability of the existing MLRS, providing greater range, significantly enhanced accuracy, and interoperability among the nations covered under the MLRS Memorandum of Understanding (MOU). The improvement in accuracy and range will reduce the number of rockets required to defeat targets, thus dramatically reducing the logistics burden and increasing crew survivability. These systems support the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002/03 PB)	68886	111389	21324
Appropriated Value	69523	100389	
Adjustments to Appropriated Value			
a. Congressional General Reductions		-884	
b. SBIR / STTR	-521		
c. Omnibus or Other Above Threshold Reductions	-1719		
d. Below Threshold Reprogramming	-3524		
e. Rescissions	-687		
Adjustments to Budget Years Since FY2002 PB	-117		36501
Current Budget Submit (FY 2003 PB )	62955	99505	57825

FY 02 Congressional reduction (-\$11.0 million).  
 FY 03 funding increase to meet increased development and testing requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	PROJECT <b>090</b>
--------------------------------------------------------------	---------------------------------------------------------------------------	-----------------------

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
090 MLRS HIMARS	46189	50703	24510	2993	1984	0	0	0	166510

**A. Mission Description and Budget Item Justification:** The High Mobility Artillery Rocket System (HIMARS) fully supports the Army Transformation to a more deployable, affordable, and lethal force. It provides MLRS capability through a lighter weight, more deployable system in both early and forced entry scenarios. Mounted on a medium tactical wheeled vehicle, HIMARS is transportable on a C-130 aircraft, is self-locating and self-loading. It provides full MLRS and Army TACMS (ATACMS) Family of Munitions capability yet requires significantly reduced airlift resources to transport a battery as opposed to a MLRS tracked battery. HIMARS is the Light Force and Objective Force choice for high volume General Support and Reinforcing fire against time-sensitive, high-payoff targets.

HIMARS meets Army's modernization goals for the 21st century, is designated the Army's "Legacy to Objective" Rocket/Missile delivery system, and was selected by Army strategic planners as one of the Army's seven "core" transformation systems.

**FY 2001 Accomplishments:**

- 44395 Conducted System Design, Test and Integration, and Cost Reduction Initiatives
- 296 Obtained Government Furnished Equipment (GFE), Communications and Trucks; performed technical assessments and prepared documentation
- 1498 Conducted Development Testing (3 Test Articles)

Total 46189

**FY 2002 Planned Program**

- 39602 Assemble hardware, conduct Contractor Development Test (CDT) and Critical Design Review (CDR)
- 11101 Conduct Extended System Integration Test (ESIT), Automotive Flight Test Series 1 & 2 and Ground Test, Resupply Vehicle and Resupply Trailer Integration Test (3 Test Articles); Perform Technical Assessments and milestone documentation

Total 50703

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

**PROJECT**  
**090**

**FY 2003 Planned Program**

- 9920 Continue System Design, conduct Functional Configuration Audit (FCA), and develop Integrated Logistics Products (ILP); Integrate and test Horizontal Technology Insertion (HTI) elements for Guided MLRS firing
- 14590 Finalize Resupply Vehicle and Resupply Trailer for FCA and Development Testing, 2nd ESIT and Operational Test (OT), and perform technical assessments and milestone documentation

Total 24510

**B. Other Program Funding Summary**

	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
Missile Procurement, Army	0	0	0	0	0	0	0	0	0
HIMARS Launcher (C03000)	0	0	128402	115554	162174	177057	224280	2098959	2906426
HIMARS Modifications (C67501)	0	0	0	476	485	4699	8657	124365	138682
HIMARS Modifications: Initial Spares (CA0289)	0	0	0	71	72	706	1298	19460	21607
Initial Spares, HIMARS (CA0288)	0	0	0	7659	3633	7672	7828	41300	68092

**C. Acquisition Strategy:** The First Unit Equipped (FUE) is planned for FY05. The contracting strategy will be sole source.

**D. Schedule Profile**

	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Design IPR 1	1Q						
Development Testing Begins	2Q						
Functional Qualification Test (FQT), Launchers 1-3 Delivered		1Q					
Design IPR 2		1Q					
Functional Configuration Audit (FCA)		2Q					
Launchers 4-6 delivered		3-4Q					
LLI IPR, Milestone C			1-2Q				
Limited User Test				2-3Q			

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)**

**February 2002**

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	PROJECT <b>090</b>
--------------------------------------------------------------	---------------------------------------------------------------------------	-----------------------

<b>D. Schedule Profile (continued)</b>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
IOT Ground Test Begins				4Q			
IOT Flight Test Begins				4Q	1Q		

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT**  
**PROGRAM**

**PROJECT**  
**090**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Risk Reduction/ Maturation Contract	SS/CPIF & CPAF	LMMFCS, TX	26804	38868		30618	1-3Q	9470	1-3Q	0	105760	0
b . Cab Improv./ OGA	N/A	TACOM (S&S)	3961	300		400	1-3Q	240	1-3Q	0	4901	0
c . GFE,Comm,Trks & Trls	N/A	TACOM & CECOM	2105	35		1460	1-3Q	250	1-3Q	0	3850	0
d . Government Support	N/A	MRDEC, IMMC, RSA, GSA	3216	2835		4203	1-3Q	929	1-3Q	0	11183	0
Subtotal:			36086	42038		36681		10889		0	125694	0

Remarks: MRDEC - Msl Res, Dev & Eng Ctr, IMMC - Integ Matl Mgmt Ctr  
 RSA - Redstone Arsenal, AL, S&S - Stewart & Stevenson  
 GSA - General Services Administration  
 L MMECS - Lockheed Martin Missile and Fire Control System

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Support Contract	C & CPFF	Camber Research, AL	377	261	2Q	300	2Q	100	2Q	0	1038	0
Subtotal:			377	261		300		100		0	1038	0



## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	<b>PROJECT</b> <b>090</b>
---------------------------------------------------------------------	----------------------------------------------------------------------------------	------------------------------

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	APG MD, WSMR NM & RTTC RSA	2007	2139	1-3Q	11318	1-3Q	13432	1-3Q	4977	33873	0
<b>Subtotal:</b>			2007	2139		11318		13432		4977	33873	0

Remarks: APG MD - Aberdeen Proving Ground, Maryland  
 WSMR NM - White Sands Missile Range, New Mexico  
 RTTC RSA - Redstone Technical Test Center, Redstone Arsenal, AL

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Proj Ofc , RSA	1661	1751	1-4Q	2404	1-4Q	89	1-4Q	0	5905	0
<b>Subtotal:</b>			1661	1751		2404		89		0	5905	0

<b>Project Total Cost:</b>			40131	46189		50703		24510		4977	166510	0
----------------------------	--	--	-------	-------	--	-------	--	-------	--	------	--------	---

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	PROJECT <b>093</b>
--------------------------------------------------------------	---------------------------------------------------------------------------	-----------------------

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
093 MLRS JOINT TECH ARCHITECTURE	0	1527	6723	4600	2100	1090	0	0	21287

**A. Mission Description and Budget Item Justification:** The JTA-A completes final development of the Joint Variable Message Format necessary to meet the Department of Defense Message Standardization requirement. It also develops and integrates situational awareness capability for both the M270A1 and HIMARS. This development meets the requirement for a digitized M270A1 for the Counterattack Corps by FY04 and a digitized HIMARS for the Interim Division by FY06. The MLRS Launchers are critical to U.S. Forces Korea and the Army Counterattack Corps as well as supporting Army Transformation. Additionally, the JTA-A provides for the development and integration of Selective Availability/Anti-Spoofing Module (SAASM) for the M270A1 and HIMARS. This development makes the M270A1 and HIMARS compliant with the Joint Staff guidance to have weapon systems SAASM compliant by FY07.

This effort is required to meet required JTA-A compliance requirements and enable firing of GMLRS and future ATACMS variants.

**FY 2001 Accomplishments:**

Project not funded in FY 2001

**FY 2002 Planned Program**

- 1527 Perform Force XXI Battle Command Brigade and Below (FBCB2) applique integration and development testing. Develop, integrate, and test SASSM and Joint Variable Message Format. Develop platform situational awareness requirements.

Total 1527

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

PROJECT  
**093**

**FY 2003 Planned Program**

- 4488 Design and implement common card interface
- 2235 Perform development testing

Total 6723

<b><u>B. Other Program Funding Summary</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
Missile Procurement, Army	0	0	0	0	0	0	0	0	0
MLRS Launcher (C65900)	196948	137085	141131	124501	118600	120719	87410	86432	1153506
MLRS Mods(C67500)	16347	23599	31907	27034	20400	15209	10277	129963	280527
MLRS Initial Spares (CA0257)	6397	9909	6731	6651	6536	6327	6418	5100	57177
MLRS Mod Initial Spares (CA0265)	830	862	5759	1304	5956	6158	4449	39700	79625

**C. Acquisition Strategy:** The Joint Technical Architecture-Army (JTA-A) standards will be implemented for the M270A1 launcher to provide Force XXI capabilities for the First Digitized Corps.

<b><u>D. Schedule Profile</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Conduct rqts analysis, configure prototype h/w and receive common cards, begin integration test			2-3Q				
Perform system integration test				1-2Q			

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

**PROJECT**  
**093**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contract (SAASM Support)	CPAF	LMMFCS, Dallas, TX	3541	0		0	1-3Q	2639	1-3Q	0	6180	0
b . Government Support	N/A	MRDEC,SED,RSA	982	0		1167	1-3Q	0		0	2149	0
Subtotal:			4523	0		1167		2639		0	8329	0

Remarks: LMMFCS - Lockheed Martin Missile and Fire Control System  
 MRDEC - Missile Research, Development and Engineering Center  
 SED, RSA - Software Engineering Directorate, Redstone Arsenal

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT**  
**PROGRAM**

**PROJECT**  
**093**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	CTSF, Ft. Hood, TX	492	0		0		2234	1-3Q	0	2726	0
Subtotal:			492	0		0		2234		0	2726	0

Remarks: CTSF - Central Test Support Facility

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Proj Ofc, RSA	690	0		360	1-4Q	1850	1-4Q	0	2900	0
Subtotal:			690	0		360		1850		0	2900	0

Remarks: PFRMS - Precision Fires Rocket and Missile Systems

Project Total Cost:			5705	0		1527		6723		0	13955	0
---------------------	--	--	------	---	--	------	--	------	--	---	-------	---

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	PROJECT <b>784</b>
--------------------------------------------------------------	---------------------------------------------------------------------------	-----------------------

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
784      GUIDED MLRS	16766	47275	26592	108	2326	8995	11367	0	157928

**A. Mission Description and Budget Item Justification:** The Guided Multiple Launch Rocket System (GMLRS) is a precision strike, artillery rocket system. Coupled with the High Mobility Artillery Rocket System (HIMARS) launcher platform, the GMLRS provides the warfighter with a highly mobile, rapidly deployable, precision guided munition with a reduced logistics burden effective against counterfire, air defense, light materiel, and personnel targets. The GMLRS is a major upgrade to the M26 series rocket and replaces the aging M26 inventory. GMLRS will integrate a guidance and control package and a new rocket motor to achieve greater range and precision accuracy requiring fewer rockets to defeat targets than current artillery rockets. Since fewer rockets will be required to defeat a target, the logistics burden will be reduced. The GMLRS will also become the primary munition for the artillery units fielded with the M270A1 launcher. The GMLRS is a five nation cooperative program that consists of France, Germany, Italy, U.K. and The United States. FY05 initiates efforts to meet DOD mandate on Insensitive Munitions effort. The GMLRS supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

Guided MLRS is the baseline for future Artillery Precision Rocket Munitions and is critical to the Army's Objective Force. It meets Army Transformation Objectives and supports Joint Vision 2020 Tenant of Precision Engagement.

**FY 2001 Accomplishments:**

- 15253      Performed Engineering Design Tests (EDT), Ground and Flight Tests, Hardware Assembly, and conducted Test Results Analysis
- 302        Performed Technical Assessments/Evaluations and Simulation Support
- 1211      Performed Development Testing (8 Test Articles)

Total 16766

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

PROJECT

**784**

## FY 2002 Planned Program

- 26675 Conduct Development Engineering, EDT Flight Tests, Production Qualification Testing (PQT) Ground and Flight Tests, Test Analysis (30 Test Articles)
- 3502 Perform Integration and Test of Alternative Self Destruct Fuze and Improved Mechanical Fuze
- 1798 Develop Advanced Field Artillery Tactical Data System (AFATDS) Interface
- 5570 Obtain assets for System Integration and Cold Region Test (18 test articles)
- 7729 Conduct system test and evaluation activities
- 2001 Perform technical assessments, concept studies, and prepare milestone documentation

Total 47275

## FY 2003 Planned Program

- 15949 Conduct Development Engineering, Functional Configuration Audit, Final Product Definition Data Package (PDDP), and System Integration Test
- 750 Prepare Technical Assessments and Milestone Documentation
- 2750 Perform Integration and test of Alternative Self Destruct Fuze
- 2000 Continue AFATDS Interface Development
- 5143 Obtain rockets for Operational Test (30 test articles)

Total 26592

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	PROJECT <b>784</b>
--------------------------------------------------------------	---------------------------------------------------------------------------	-----------------------

<b><u>B. Other Program Funding Summary</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
Missile Procurement Army - ER-MLRS (C65402)	5727	0	0	0	0	0	0	0	119296
Missile Procurement Army - GMLRS (C65404)	0	0	29698	85001	100873	90394	77995	8109100	8493061

**C. Acquisition Strategy:** The GMLRS acquisition strategy is a streamlined product improvement program which permits entrance into Low Rate Initial Production (LRIP) and subsequent Full-Scale Production after completion of the System Development Demonstration (SDD) program. The primary objective of the SDD phase is to develop a rocket with greater range and significantly enhanced accuracy with minimum impact on existing MLRS companion hardware and software. This effort will incorporate the results of other development efforts for an alternative self destruct fuze and an improved mechanical fuze as well as increase the range for a new rocket motor. The acquisition alternative most advantageous to the government is a sole source SDD contract with the system prime contractor, Lockheed Martin Missile & Fire Control Systems (LMMFCS), and maximum competition of non-developmental item (NDI) components at the vendor level.

<b><u>D. Schedule Profile</u></b>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
EDT Ground Tests, Ballistic flights 1&2, Motor Qual tests, Final SW Integration Test, HWIL Tests	1-4Q	1-2Q					
EDT Rocket intergration and test, EDT Flight Tests 1&2, Motor Qual Complete		1Q					
EDT and PQT Rocket Integration , EDT Flight Tests 3-6, ROFS Software FQT		2-3Q					
Functional Configuration Audit (FCA)			1Q				
Facilitization IPR, Final PDDP, MS C			1-3Q				
LRIP Contract Award			3Q				
HIMARS/GMLRS DT Flight Test, Cold Region Test				1-2Q			
1st LRIP Rocket Delivery, Production Verification Test (PVT)					1-2Q		
Initial Operational Test (IOT), Ground and Flight Test					3-4Q		
Full Rate Production Decision, FRP Contract, Initial Operational Capability (IOC)						2-4Q	



## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT**  
**PROGRAM**

**PROJECT**  
**784**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SDD Contract	SS & CPAF	LMMFCS Dallas, TX	47729	10138	1-3Q	28428	1-3Q	17960	1-3Q	11438	115693	0
b . Government Support	N/A	MRDEC, IMMC, RSA, GSA	5802	3545	1-3Q	6760	1-3Q	2000	1-3Q	3250	21357	0
Subtotal:			53531	13683		35188		19960		14688	137050	0

Remarks: LMMFCS - Lockheed Martin Missile and Fire Control System  
 MRDEC - Missile Research, Development and Engineering Center  
 IMMC, RSA - Integrated Materiel Management Center, Redstone Arsenal  
 GSA - General Services Administration

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Support Contract	C & CPFF	Camber Research, AL	802	300	2Q	450	2Q	750	2Q	1300	3602	0
b . P3I Concept Studies	C & TDB	TBD	0	0		1500	3Q	0		0	1500	0
Subtotal:			802	300		1950		750		1300	5102	0

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	<b>PROJECT</b> <b>784</b>
---------------------------------------------------------------------	----------------------------------------------------------------------------------	------------------------------

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	WSMR, NM & Meppen,GE	979	1295	1-3Q	7730	1-3Q	4470	1Q	4750	19224	0
Subtotal:			979	1295		7730		4470		4750	19224	0

Remarks: WSMR, NM - White Sands Missile Range, New Mexico

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Proj Ofc, RSA	2827	1488	1-4Q	2407	1-4Q	1412	1-4Q	2058	10192	0
Subtotal:			2827	1488		2407		1412		2058	10192	0

Remarks: PFRMS - Precision Fires Rocket and Missile Systems

Project Total Cost:			58139	16766		47275		26592		22796	171568	0
---------------------	--	--	-------	-------	--	-------	--	-------	--	-------	--------	---

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0708045A - End Item Industrial Preparedness Activities**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	85644	77863	61025	69315	71104	79213	82524	Continuing	Continuing
E25 MFG SCIENCE & TECH	59283	63614	42332	49679	51300	59143	62024	Continuing	Continuing
E27 RELIABILITY, MAINTAINABILITY & SUSTAINABILITY(RMS)	16986	14249	18693	19636	19804	20070	20500	Continuing	Continuing
E32 COSSI	9375	0	0	0	0	0	0	0	11000

**A. Mission Description and Budget Item Justification:** The goal of this program element (PE) is to improve readiness and reduce Total Ownership Cost for the Army through new manufacturing technologies and enhancements/improvements to legacy systems. The technologies introduced through this PE support the Army transition to the Future Combat Systems (FCS) and Objective Force. This program element comprises three projects: E25 Manufacturing Technology (ManTech); E27 Reliability, Maintainability and Supportability (RM&S); and E32 Commercial Operations and Support Savings Initiative (COSSI). The objective of the Army ManTech program is to provide essential manufacturing technologies that will enable affordable production and sustainment of future and legacy weapon systems. Objectives include development of advanced manufacturing processes, equipment and systems; enhancement in quality while achieving reduction in cost of Army materiel; and transferring improved manufacturing technologies to the industrial base. The ManTech program is especially important in the current environment because of the large decline in weapon system production investments. Projects selected for funding under this program have the potential for high payoff across the spectrum of Army weapon systems as well as significant impact on national manufacturing issues and the U.S. industrial base. The RM&S program funds projects that reduce operations and support costs through reliability, maintainability, and/or supportability improvements to fielded weapons systems or major end items. The objective of the COSSI program is to reduce operations and support costs by developing, testing, and implementing a method to insert commercial items into fielded military systems on a routine and expedited basis. COSSI was funded in DOD PE 0603805E through FY 1998, transferred to Army PE 0604824 in FY 1999, and then to PE 0708045A in FY 2000. Army funding for COSSI terminated after FY 2001.

The work in this PE is consistent with the Army S&T Master Plan (ASTMP), the Army Modernization Plan and Project Reliance. The PE contains no duplication with any effort within the Military Departments.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0708045A - End Item Industrial Preparedness Activities**

<u><b>B. Program Change Summary</b></u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	89067	45697	49960
Appropriated Value	89906	78497	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-634	0
b. SBIR / STTR	-2612	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
e. Below Threshold Reprogramming	-826	0	0
f. Rescissions	-824	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	11065
Current Budget Submit (FY 2003 PB )	85644	77863	61025

Change Summary Explanation:

Significant Changes:

FY02 (+\$32800) - Congressional Adds totaling \$32800 (as noted below) added to this Program Element.

FY03 (+\$11065) - Project E25 increased to mature manufacturing technologies for affordable and producible sensors.

FY02 - Congressional adds were made for MANTECH for Munitions, Project E25 (\$11200); Totally Integrated Munitions Enterprise, Project E25 (\$7000); Laser Peening Technology for Aircraft and Ground Equipment, Project E25 (\$1000); Rechargeable Bipolar Wafer Cell NiMH Battery for SINCGARS, Project E25 (\$1000); Femtosecond Laser, Project E25 (\$4200); Force Provider Microwave Wastewater Treatment, Project E25 (\$1400); MANTECH Program for Cylindrical Zinc Batteries, Project E25 (\$1800); Continuous Manufacturing for Metal Matrix Composites, Project E25 (\$2600); and Modular Extendable Rigid Wall Shelter, Project E25 (\$2600).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>				<b>PE NUMBER AND TITLE</b> <b>0708045A - End Item Industrial Preparedness</b>				<b>PROJECT</b> <b>E25</b>				
				<b>Activities</b>								
COST (In Thousands)				FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
E25	MFG SCIENCE & TECH			59283	63614	42332	49679	51300	59143	62024	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The goal of the Army Manufacturing Technology (ManTech) program is to provide essential manufacturing technologies that will enable the affordable production and sustainment of future and legacy weapon systems including support for Future Combat Systems (FCS) and the Objective Force. Objectives include development of advanced manufacturing processes, equipment and systems; enhancement in quality while achieving reduction in cost of Army materiel; and transferring improved manufacturing technologies to the industrial base. The ManTech program is especially important in the current environment because of the large decline in weapon system production investments since most manufacturing technology was formerly accomplished within individual production programs. Projects selected for funding under this program have the potential for high payoff across the spectrum of Army weapon systems as well as significant impact on national manufacturing issues and the U.S. industrial base. Other factors considered for project selection include cost share with both industry and the program managers as well as return on investment. Major programs are identified as Manufacturing Technology Objectives (MTOs). The cited work is consistent with the Army S&T Master Plan (ASTMP), the Army Modernization Plan and Project Reliance. The project contains no duplication with any effort within the Military Departments.

**FY 2001 Accomplishments:**

- 304 - Ammunition - Conduct pre-qualification test and initiate production improvement program to lower the cost and improve the manufacturing processes for the 120mm practice mortar fins in support of the knowledge and process tools for the Manufacturing of Affordable Composites MTO.
- 1710 - Aviation - Demonstrate processes to achieve 30% to 60% component cost reduction of thin wall castings for auxiliary power units and propulsion systems. Power Transfer Systems Manufacturing (PTSM) developed a manufacturing concept for chemical surface finishing of rotating shafts and gears to extend service life and increase load-carrying ability for aerospace components. Through the Knowledge and Process Tools for Manufacturing of Affordable Composites MTO, demonstrated Comanche pilot structural composite manufacturing improvement processes that significantly reduce the weight and cost of manufacturing large scale composite components.
- 2235 - Command and Control - Fabricated and tested phase shifters for electronic scanning antennas and demonstrated twenty times reduction in power requirements for phase shifters. Demonstrated manufacturing processes to control cell gap uniformity to lower cost of active matrix liquid crystal displays to lower the cost from \$12K to less than \$2K per system. Demonstrated phosphor and metals deposition manufacturing processes to increase yields of active matrix electro-luminescent displays used in head tracked vision systems and thermal weapons system.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0708045A - End Item Industrial Preparedness Activities</b>	<b>PROJECT</b> <b>E25</b>
---------------------------------------------------------------------	---------------------------------------------------------------------------------------------	------------------------------

**FY 2001 Accomplishments: (Continued)**

- 350 - Combat Service Support - Refined seam-sealing technology process, expanded production capability and positioned seam sealing manufacturing demonstration for transition to tents, tarps and extended cold weather clothing.
- 14360 - Fire Support - Increased performance and decreased cost of weapon system gun barrels with specific subtasks to include the manufacture and installation of sputtering targets and development of manufacturing processes for large caliber gun barrels through the Tantalum Sputtering MTO. Inserted special coated integrated circuits into selected military systems for demonstration and validation through the Wafer Applied Seal for Plastic Encapsulated Microcircuit Protection MTO to demonstrate a 78% improvement in resistance to internal corrosion and improve fabrication and packaging yields by 5% (significant for large production volume). Developed manufacturing processes for Inertial Measurement Units (IMU) utilizing Micro-Electro-Mechanical Systems (MEMS) and model process flow of the assembly process in conjunction with the Low Cost, High-G, MEMS, IMU Coordinated Development and Manufacturing Effort for Common Guidance STO. Through the Uniform Cannon Tube Reshaping MTO, improve centerline bore measurement and integrate computer control for large caliber cannon tube reshaping to enhance lethality and survivability of the M1A1 and Future Combat Systems. Evaluated affordable advanced tungsten warhead and steel warhead designs through an MTO for the Objective Individual Combat Weapon (OICW) and Objective Crew-Served Weapon (OCSW). Utilized commercial digital signal processors and alternative design guidance and control modules to reduce new upgrade procurement costs by 25% for Army TACMS 2000 and Patriot Advanced Capability 3 (PAC3) guidance and control modules. Produced and evaluated titanium alloy slabs and designed a robotic workcell for Improved Manufacturing Methods of Titanium in Ultra-Lightweight Armament and Ground Vehicle Systems MTO.
- 6616 - Intelligence and Electronic Warfare - Demonstrate 15% yield for 240x320 cooled dual color FPAs and transfer processes to 480x640 cooled dual color FPAs through the Cooled and Uncooled Staring Sensors MTO. Through the Conformal Optics MTO, demonstrated an advanced asphere optic to reduce weight and cost of optical subsystems such as that used on Objective Individual Combat Weapon (OICW). Demonstrated manufacturing processing for square photocathodes that are more efficient than round photocathodes to reduce the cost of short wave infrared gated camera tubes used in target detection and recognition. Developed several viable production methods to integrate electrical and optical conductive networks, miniature sensors, and electronic devices into textile based clothing and equipment to support future land warrior systems.
- 1708 - Maneuver - Implemented investment strategy for risk reduction, knowledge base development, and tooling for the MTO in knowledge and process tools for manufacturing affordable composite structures, and optimize the Armor Tile Processing and Placement to reduce the cost of the Crusader turret by 37%.
- 7000 - Totally Integrated Munitions Enterprise (TIME) continued another year of effort supported by previous Congressional adds that enables cost effective, agile, rapidly reconfigurable, distributed enterprise and control technologies for munitions manufacture. Goals: Develop manufacturing technologies essential to the affordable production of conventional and precision munitions; develop, integrate, and demonstrate the TIME system architecture, Open Modular Architecture Controller (OMAC) modules/application programming interfaces for machine tools and other process controllers, communications, software, and other critical technologies necessary to achieve the objectives of TIME.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0708045A - End Item Industrial Preparedness**  
**Activities**

**PROJECT**  
**E25**

**FY 2001 Accomplishments: (Continued)**

- 2000 - Optics manufacturing provided for a one year effort toward enabling the affordable fabrication, testing and assembly of complex optical elements. Goals: Develop and characterize processes for shaping and finishing optical glasses and infrared transmitting materials for military systems and develop processes for fabricating durable multi-spectral transmitting windows.
- 3000 - Continuous manufacturing technology (MANTECH) provided for a one year effort toward essential manufacturing technologies that enabled the affordable production and sustainment of future weapon systems. Goal: Demonstrate a continuous manufacturing process to produce low-cost, low weight aluminum metal matrix composite components with tailorable properties.
- 1000 - Single Channel Ground and Airborne Radio System (SINCGARS) provided for a one year manufacturing process development effort for rechargeable bipolar wafer-cell nickel metal hydride (NiMH) batteries for the SINCGARS radio system.
- 15000 - Munitions Manufacturing continued another year of effort supported by previous Congressional adds to reduce product variability and reduce cost of production. Goal: Develop manufacturing technologies essential to the affordable production of conventional and precision munitions.
- 3000 - The Printed Wiring Board Manufacturing and Technology Center continued another year of effort supported by previous Congressional adds for the development and application of printed wiring board technology for weapon systems. Goal: Develop manufacturing technologies essential to the affordable production of advanced printed wiring boards (PWBs) for DoD weapon systems.
- 1000 - Air compressors continued research supported by previous Congressional adds to apply natural gas engine driven air compressor technology to Army installations. Goal: Conduct cost-shared demonstration to achieve savings in operational budgets through the high efficiency and low overall cost of environmentally benign natural gas engine-driven air compressor technology.

Total 59283

**FY 2002 Planned Program**

- 1729 - Aviation - Refine surface finishing process, fabricate test specimens and conduct rolling contact fatigue tests for aerospace power transfer systems components through Power Transfer Systems Manufacturing (PTSM). Transition 6-Sigma improved composite manufacturing processes through the Knowledge and Process Tools for Manufacturing of Affordable Composites MTO to reduce the labor required to produce Comanche lower forward fuselage and Apache Longbow mid fuselage by 25%. Reduce manufacturing cost of sensor element material used in advanced threat/countermeasures/common missile warning systems.
- 831 - Command and Control - Demonstrate active matrix electro-luminescent display manufacturing and process improvements and cost reductions early in the fielding cycle.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development**

**0708045A - End Item Industrial Preparedness**

**E25**

**Activities**

**FY 2002 Planned Program (Continued)**

- 20215 - Fire Support - Demonstrate increased performance and decreased cost through the Large Caliber Cannon Life Extension via Tantalum Sputtering MTO, including the manufacture and set-up of 120mm and 155mm sputtered barrels. Develop manufacturing processes and model process flow of the assembly process for inertial measurement units utilizing micro-electro-mechanical systems in conjunction with the Low Cost, High-G, MEMS, IMU Coordinated Development and Manufacturing Effort for Common Guidance STO. Conduct fatigue testing and validate cannon tube reshaping process and precision reshaping algorithms to improve cannon tube straightness on 120mm barrels through the Uniform Cannon Tube Reshaping MTO. Demonstrate warhead manufacturing process for the Objective Individual Combat Weapon/Objective Crew-Served Weapon (OICW/OCSW) MTO. Scale up manufacturing process, optimize design for manufacturing and reliability, demonstrate digital signal processing technologies and transition to TACMS and PAC3. Produce titanium ingots, develop simulation tools to optimize forging and casting and demonstrate out-of-chamber flux-cored welding process for use with ground vehicle applications through the Improved Manufacturing Methods for Titanium in Ultra -Lightweight Armament and Ground Vehicles Systems MTO.
- 6163 - Intelligence and Electronic Warfare - Fabricate and integrate 480x640 cooled mid-wave infrared and long-wave infrared focal plane array (FPA) and dewar manufacturing improvements to complete the IR Cooled and Uncooled Staring Sensors MTO. Finalize processes for shaping and finishing complex conformal optical surfaces and establish integrated metrology process to demonstrate on Objective Individual Combat Weapons (OICW) components and complete the Conformal Optics MTO. Demonstrate improved manufacturing processes for short-wave infrared gated camera tube used for target detection.
- 1876 - Maneuver - Complete cost model and enhance process models for thick section composite resin transfer molding process supporting Crusader through Knowledge and Process Tools for Manufacturing Affordable Composites MTO.  
- FY02 Congressional Adds:
- 11200 - ManTech for Munitions the object of this one year Congressional add is to mature manufacturing technologies for energetic materials, warhead fabrication, electronics for smart and precision munitions, and composite materials for applications. No additional funding is required to complete this project.
- 7000 - Totally Integrated Munitions Enterprise (TIME). The object of this one year Congressional add is to enable cost effective, agile, rapidly reconfigurable, distributed enterprise and control technologies for munitions manufacture. No additional funding is required to complete this project.
- 1000 - Laser Peening Technology for Aircraft and Ground Equipment. The object of this one year Congressional add is to mature the Laser shock peening process, which induces compressive stresses to extend the fatigue life of metal components for application to Army aircraft and ground equipment. No additional funding is required to complete this project.



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0708045A - End Item Industrial Preparedness Activities</b>	PROJECT <b>E25</b>
--------------------------------------------------------------	--------------------------------------------------------------------------------------	-----------------------

**FY 2002 Planned Program (Continued)**

- 1000 - Rechargeable Bipolar Wafer Cell NiMH Battery for SINCGARS. The object of this one year Congressional add is to mature a manufacturing process for rechargeable bipolar wafer-cell nickel metal hydride (NiMH) batteries for Army vehicle applications. No additional funding is required to complete this project.
- 4200 - Femtosecond Laser. The object of this one year Congressional add is to mature a new production capability using femtosecond solid state lasers for ultra-precise drilling applications to include diesel fuel injector nozzles. No additional funding is required to complete this project.
- 1400 - Force Provider Microwave Wastewater Treatment. The object of this one year Congressional add is to mature an integrated wastewater treatment ensemble, which will treat both solid and liquid waste products stored in the Force Provider system. No additional funding is required to complete this project.
- 1800 - ManTech Program for Cylindrical Zinc Batteries. The object of this one year Congressional add is to mature a manufacturing process for cylindrical zinc batteries for Army applications. No additional funding is required to complete this project.
- 2600 - Continuous Manufacturing for Metal Matrix Composites. The object of this one year Congressional add is to mature the technology to affordably fabricate Aluminum Metal Matrix Composites. No additional funding is required to complete this project.
- 2600 - Modular Extendable Rigid Wall Shelter (MERWS). The object of this one year Congressional add is to fund a Cooperative Research and Development Agreement to commercialize the overall design and manufacture of the MERWS technology. No additional funding is required to complete this project.

Total 63614

**FY 2003 Planned Program**

- 2085 - Missiles and Air Defense - Demonstrate advanced design and manufacturing simulation capabilities for cost performance trades on modernized Hellfire and Ballistic Missile Defense System requirements as part of the Evolutionary Missile Acquisition Demonstration MTO.
- 5856 - Aviation - Through the Low Cost Lightweight Structure MTO, select high performance light weight materials, mature low cost processes and improve manufacturing yields to produce a tailcone for the next generation UH-60 Black Hawk, the forward nose enclosure and forward pylon on the CH-47 Chinook and redesign structural components for the RAH-66 Comanche. Under the Affordable Helicopter Drive Train Housing MTO, mature lower cost and lighter weight helicopter drive train housings to reduce both manufacturing cost and weight. Complete surface finishing process development, fabricate gear-sets for Apache, Comanche T-800 engine, and Black Hawk gearboxes, and conduct 4-square endurance testing to validate the process through Power Transfer Systems Manufacturing (PTSM). Complete the Knowledge and Process Tools for Manufacturing of Affordable Composites and transition improved composite manufacturing processes to production for the Apache Longbow mid fuselage and the Comanche lower forward fuselage.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0708045A - End Item Industrial Preparedness  
Activities**

PROJECT

**E25**

## FY 2003 Planned Program (Continued)

- 20995 - Fire Support - Coat 120mm and 155mm Sputtered Barrels and implement final modifications to the Tantalum Sputtering MTO process to extend barrel life. Demonstrate precision straightness inspection and automated reshaping manufacturing equipment and methodologies for 120mm cannon tubes through the Uniform Cannon Tube Reshaping MTO. Complete equipment and software enhancements, demonstrate manufacturing enhancements for MEMS IMU, and transition to APKWS and Modernized Hellfire weapons systems in conjunction with the Low Cost, High-G MEMS, IMU Coordinated Development and Manufacturing Effort for Common Guidance STO. Fabricate lightweight artillery components such as road wheels, track shoes, suspension housings, engine rear door and sprocket carriers to demonstrate casting or forging, assemble and automate fabrication methods using robotic welding for the Titanium MTO.
- 12047 - Intelligence and Electronic Warfare (Sensors) - Through an MTO, mature an economical, affordable supply of laser diode arrays, improve material yields and wafer-processing procedures, reduce burn-in and test times, and design and develop a common bar for target designation systems in Comanche, Objective Individual Combat Weapon (OICW), Objective Crew-Served Weapon (OCSW), Kiowa Warrior, Apache, and Future Combat Systems. Provide two sources of Molecular Beam Epitaxy (MBE) fabricated large area 2D small pixel multicolor IR focal plane arrays (FPA) - simultaneous color registration. FPAs will be at least a mega pixel in size, have adaptive frame rates to track high speed projectiles, have on chip smart readout functions like non-uniformity correction and A/D converters to reduce camera size and weight, have multicolor detectors that can pull targets out of camouflage and operate at elevated temperature to reduce cryogenic cooling requirements.
- 1349 - Maneuver - Implement investment strategy for risk reduction, knowledge base development, and tooling for the MTO in knowledge and process tools for manufacturing affordable composite structures. Transition advanced structural composite manufacturing processes and tools to Comanche, and munitions weapons systems.

Total 42332

**B. Other Program Funding Summary:** Not applicable for this item.

**C. Acquisition Strategy:** Not applicable for this item.

**D. Schedule Profile:** Not applicable for this item.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0708045A - End Item Industrial Preparedness</b>					<b>PROJECT</b> <b>E27</b>			
		<b>Activities</b>								
	COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
E27	RELIABILITY, MAINTAINABILITY & SUSTAINABILITY(RMS)	16986	14249	18693	19636	19804	20070	20500	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project supports the Army transformation to the Objective Force. The objective of the Reliability, Maintainability and Supportability (RM&S) program supports innovative, state-of-the-art projects to improve readiness and reduce Operations and Support (O&S) costs by replacing or improving components of fielded weapon/legacy systems with more reliable, maintainable and/or supportable items. The RM&S program is limited to improvements that reduce the cost of ownership for fielded systems and equipment. RM&S funds generally may not be used to modify a weapon system currently in development, until the weapon system has satisfied all supportability requirements defined in the Operational Requirements Document (ORD) or system specification. The RM&S program uses Research, Development, Test and Evaluation (RDT&E) funding, which allows the pursuit of complex technology insertion projects.

**FY 2001 Accomplishments:**

- 8028 - Aviation - Fabricated prototype hardware, installed smart orifices, and conducted support tests for the high performance scalable landing gear shock strut that is less susceptible to damage. Developed cost avoidance, cycle time reduction, and information integration change agent strategies to improve the depot life cycle repair environment through the Rotary Wing Aircraft Sustainment Project. Integrated and tested the new strapdown fiber optic attitude heading reference system which uses directional/vertical gyroscopes as a replacement for the current mechanical gyros used in cargo and utility helicopters. Completed engineering design and development, and continued test article fabrication of the new CH-47 dry rotor hub.
  
- 958 - Combat Service Support - Correlated and validated new Meal, Ready to Eat (MRE) storage testing method with the existing longer term testing parameters, complete product tests and shelf stability evaluations, and transition to the Defense Logistics Agency (DLA) for procurement. Optimized the MRE's packaging to reduce the amount of materials required to package the MRE. Selected supplier for and conducted fabric testing of the alternative water resistant, vapor permeable fabrics for the extended cold weather clothing system to reduce weight, improve cold weather protection, and reduce overall costs. Performed system testing and evaluation of the wastewater treatment system to treat laundry wastewater for reuse in latrines and showers and a total treatment / reutilization of wastewater that will reduce field water consumption and wastewater discharge.
  
- 506 - Fire Support - Validated radial forging procedures for gun barrel preforms and prepared to demonstrate extended wear of clad M240 gun barrels.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0708045A - End Item Industrial Preparedness Activities</b>	<b>PROJECT</b> <b>E27</b>
---------------------------------------------------------------------	---------------------------------------------------------------------------------------------	------------------------------

**FY 2001 Accomplishments: (Continued)**

- 4892 - Intelligence and Electronic Warfare - Completed hardware design and development and unit testing for the cost and supportability upgrades to the Improved Target Acquisition System - fire control subsystem and Improved Bradley Acquisition System - missile control subsystem. Rewired and tested upgraded Sentinel signal data processor upgrades and transitioned to the Sentinel processor family.
- 2106 - Mobility - Identified new track vehicle rubber formulations to increase the life of rubber track components to 5000 miles.
- 496 - Nuclear, Biological, Chemical - Demonstrated correlations between live agents and simulant chemicals to reduce cost and cycle time associated with stockpile testing of chemical protective clothing.

Total 16986

**FY 2002 Planned Program**

- 8827 - Aviation - Revise the shock strut design to incorporate new smart orifices, fabricate final test hardware, and conduct final performance testing for the new high performance scalable landing gear shock strut for the Apache. Implement process changes and model process flow enhancements through the Rotary Wing Aircraft Sustainment Project (RWASP). Continue test article fabrication, complete component testing, begin flight testing and low rate initial production of the new CH-47 dry rotor hub that will have 75% fewer parts and 70% fewer special tools required to maintain the system.
- 516 - Command and Control - Re-establish a production capability for new AN/PRC-112 radios, enabling the production of new modules to be used as spares and repair parts at depot level repair facilities, so that AN/PRC-112 radios already deployed can be supported.
- 220 - Fire Support - Fabricate final prototypes and conduct final verification testing for the new radial forging procedures for gun barrel preforms and demonstrate extended wear of clad M240 gun barrels.
- 1880 - Intelligence and Electronic Warfare - Perform software integration testing and formal qualification testing for the cost and supportability upgrades to the Improved Target Acquisition System - fire control subsystem and Improved Bradley Acquisition System - missile control subsystem.
- 510 - Maneuver - Demonstrate a low cost corrosion mitigating technique for epoxy -coated High Mobility Multipurpose Wheeled Vehicle (HMMWV) frame rails to prevent costly premature failures through treatment of test vehicles, testing treated, preparing final report, and training personnel for transition to field units and treatment implementation.
- 2296 - Mobility - Prove out 5000 mile production rubber track candidates and test methods on T158, T157, and T156 track systems and implement on Abrams tank, and Bradley Fighting Vehicle.

Total 14249

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0708045A - End Item Industrial Preparedness  
Activities**

PROJECT

**E27**

## **FY 2003 Planned Program**

- 6983 - Aviation - Complete development and prototyping and prepare for test and evaluation of the new CH-47 dry rotor hub. Mature and demonstrate process changes and interfaces with the wholesale logistics modernization program through the Rotary Wing Aircraft Sustainment Project (RWASP). Mature an automated engine trend monitoring system for aircraft weapons systems. Redesign the A2 circuit card assembly to eliminate "false failure" depot level repair actions and redesign associated antennas for ruggedization, modernization and repairability.
- 7835 - Fire Support - Integrate a system architecture database with an automated wiring analyzer for testing Army weapon systems. Mature a higher quality and more consistent ultrasonic cleaning process for small caliber weapons. Design a plug and play global positioning system guidance package for the Precision Fires Rocket and Missiles Systems, as a cost effective replacement for the position navigation unit.
- 3413 - Intelligence and Electronic Warfare - Improve the reliability of the one watt linear drive cooler mean time to failure from 8000 to 12000 hours by reducing gas contamination, making enhancements to cooler clearance seals and the regenerator assembly, and making refinements to the flexure springs. Conduct an engineering analysis, design and test, prototype fabrication, system integration, and validation / acceptance testing effort for an alternative battery power source to be used in the improved target acquisition system.
- 462 - Maneuver - Mature and implement a sophisticated laser repair technique utilizing direct metal deposition technology to repair or reproduce near net shaped metal parts directly from computer generated designs.

Total 18693

**B. Other Program Funding Summary:** Not applicable for this item.

**C. Acquisition Strategy:** Not applicable for this item.

**D. Schedule Profile:** Not applicable for this item.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

**February 2002**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>				<b>PE NUMBER AND TITLE</b> <b>1001018A - NATO Joint STARS</b>				<b>PROJECT</b> <b>C35</b>	
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
C35    NATO AGS - TIARA	500	0	512	512	611	610	710	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The United States is a major participant in a cooperative venture to select and procure a ground surveillance capability for North Atlantic Treaty Organization (NATO) forces. In May 1997, a Conference of National Armament Directors invited member nations to offer Alliance Ground Surveillance (AGS) solutions. Currently, work continues to establish a solution for a NATO AGS system. The Army will support US Government activities in providing a NATO AGS system, focusing on the ground station segment of any solution. Once NATO members agree upon an AGS solution, Army efforts will shift from defining an acceptable solution to the necessary development of data formats, interoperability, and ground station hardware and software requirements. The three Army imperatives with regard to participation in NATO AGS are interoperability, technology re-use, and technology feedback. This system supports the legacy transition path of the Transformation Campaign Plan (TCP).

FY03 funds will provide personnel and resources to the NATO Trans-Atlantic Advanced Radar (NATAR) Program Definition Office (PDO). The Army will fund work contributing to interoperability among allied nations and support US participation in pertinent exercises such as "Clean Hunter". Other primary support to NATO AGS will include the development of a Concept of Operations (CONOPS) and Tactics, Techniques, and Procedures (TTP). The Army will support both working level meetings and executive oversight groups such as the NATAR Management Board, the AGS Steering Committee, and the Conference of National Armament Directors.

**FY 2001 Accomplishments:**

- 500    Support the NATAR Program Definition Office in the preparation of acquisition documentation for the development/procurement of NATO AGS Air and Ground Segments.

Total    500

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**1001018A - NATO Joint STARS**

PROJECT  
**C35**

**FY 2003 Planned Program**

- 16 Continue to support necessary meetings and conferences.
  - 205 Develop Ground Station Segment to meet NATO AGS Requirements.
  - 169 Conduct Developmental Tests and Demonstrations.
  - 122 Support the NATAR Program Definition Office in the preparation of acquisition documentation for development/procurement of NATO AGS Air and Ground Segments.
- Total 512

<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	0	2109	2208
Appropriated Value	0	0	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	0	0
b. SBIR/STTR	0	0	0
c. Omnibus or Other Above Threshold Reduction	0	0	0
d. Below Threshold Reprogramming	500	0	0
e. Recissions	0	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-1696
Current Budget Submit (FY 2003 PB)	500	0	512

Change Summary Explanation:

FY01 - \$ .500M reprogrammed from 64770 202 to support NATO AGS efforts

FY02 - \$2.109M zeroed out by Congressional action.

FY03 - \$1.695M Funds were realigned from this project to support other Army higher priority requirements.

\$0.001M Decrease in form of budget adjustment

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**1001018A - NATO Joint STARS**

PROJECT  
**C35**

**C. Other Program Funding Summary**

	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
BA1080 Joint STARS (TIARA)	65806	21141	8620	8438	0	0	0	0	198845
BS9724 Joint STARS Spares	4765	4308	3265	301	500	0	0	0	18573
64770/D202 Joint Stars(TIARA)	28133	8026	4740	4939	6267	6184	5817	0	89782

**D. Acquisition Strategy:** NATO AGS is currently in the Program Definition phase. The Army will support this activity with both requirements and acquisition personnel. The objective is to prepare for the eventual NATO procurement of an AGS capability. Based on extensive background knowledge obtained through the development of the Army's Common Ground Station (CGS), the Army intends to support the AGS effort with the expertise of individuals already involved with CGS. The Army intends to contract with the CGS manufacturer as necessary to support the development of an AGS ground segment, and to support exercises and demonstrations as they pertain to the US Government objectives and the Army AGS imperatives.

**E. Schedule Profile**

	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Development of Baseline Solution	1-4Q		1-4Q	1-4Q	1-4Q		
Spiral Development and Pre-Planned Product Improvements					1-4Q	1-4Q	1-4Q



## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**1001018A - NATO Joint STARS**

**PROJECT**  
**C35**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Develop Architecture, Data Formats and Interoperability Requirements	T&M	Motorola, Scottsdale, AZ	20724	0		0		0	1Q	Continue	20724	Continue
b . Develop NATO AGS Solutions for Ground Station Segment	T&M	Motorola, Scottsdale, AZ	0	0		0		156	1Q	Continue	156	Continue
Subtotal:			20724	0		0		156		Continue	20880	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Definition Office (PDO) Support	MIPR	PDO, Brussels	0	405	1-4Q	0		123	1Q	Continue	528	Continue
b . Support Executive and Working Level Meetings and Conferences	MIPR	Various	0	20	1-4Q	0		16	1-4Q	Continue	36	Continue
Subtotal:			0	425		0		139		Continue	564	Continue

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**1001018A - NATO Joint STARS**

**PROJECT**  
**C35**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Conduct Exercises and Demonstrations	T&M	Various Locations	0	0		0		62	1Q	Continue	62	Continue
b . Test and Evaluation Support	MIPR	Other Gov't Agencies	0	0		0		72	1Q	Continue	72	Continue
Subtotal:			0	0		0		134		Continue	134	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management		PM CGS, Fort Monmouth, NJ	1707	75	1-4Q	0		83	1Q	Continue	1865	Continue
Subtotal:			1707	75		0		83		Continue	1865	Continue

Project Total Cost:			22431	500		0		512		Continue	23443	Continue
---------------------	--	--	-------	-----	--	---	--	-----	--	----------	-------	----------

## **End of P&R Forms Report**

Who: Mr James Glidewell When: 15-Feb-02 03:43 PM

UNCLASSIFIED

APPENDIX A

DISTRIBUTION OF RDTE,A DESCRIPTIVE SUMMARIES  
FY 2003 PRESIDENT'S BUDGET SUBMIT

PRINT

ADDRESS

- \* DOD Compt, INV, Pentagon, Room 4B916, Washington, DC 20301-1100
- \* DOD Compt, P&S, Pentagon, Room 3A862, Washington, DC 20301-1100
- \* DOD Compt, MILCON, Pentagon, Room 3D841, Washington, DC 20301-1100
- \* DOD Compt, Management Improvement, Pentagon, Room 1A658, Washington, DC 20301-1100
- \* DOD Compt, PA&E, Pentagon, Room 2D278, Washington, DC 20310-1100
- \* USD(A&T), Mailroom, Pentagon, Room 3D139, Washington, DC 20310
- \* USD (Policy), Pentagon, Room 4B926, Washington, DC 20301-2100
- \* OSD, ATTN: C<sup>3</sup>I, Pentagon, Room 3E209, Washington, DC 20301
- \* ASD(FM&P)P&R, Pentagon, Room 3C980, Washington, DC 20301-4000
- \* ASD(RA), Pentagon, Room 2D528, Washington, DC 20301
- \* JCS(J-8), Pentagon, Room 1E963, Washington, DC 20310
- \* OSD, ATTN: DOT&E, Pentagon, Room 3E333, Washington, DC 20301-1700
- \* HQDA (SAAL-ZA), Pentagon, Room 2E672, Washington, DC 20310-0103
- \* HQDA (SAAL-ZD), Pentagon, Room 2E673, Washington, DC 20310-0103
- \* HQDA (SAAL-DE), Pentagon, Room 2E673, Washington, DC 20310
- \* HQDA (SAAL-DO), Pentagon, Room 3E422, Washington, DC 20310
- \* HQDA (SAAL-ZCS), Pentagon, Room 3D433, Washington, DC 20310
- \* HQDA (SAAL-ZCA), Pentagon, Room 3D462, Washington, DC 20310
- \* HQDA (SAAL-ZS), Pentagon, Room 3D478, Washington, DC 20310
- \* HQDA (SAAL-TS), Suite 9000, 2511 South Jefferson Davis Highway, Arlington, VA 22202
- \* HQDA (SAIS-PPG), Pentagon, Room 1D679, Washington, DC 20310
- \* HQDA (DACS-DP), Pentagon, Room 3C738, Washington, DC 20310
- \* HQDA (DACS-DME), Pentagon, Room 2B683, Washington, DC 20310

**\*Distributed electronically – accessed by DOD subscribers only on the RDAISA P & R Forms Web Site at <https://apps.rdaisa.army.mil/prforms/home/>**

UNCLASSIFIED

UNCLASSIFIED

APPENDIX A

DISTRIBUTION OF RDTE,A DESCRIPTIVE SUMMARIES  
FY 2003 PRESIDENT'S BUDGET SUBMIT

PRINT

ADDRESS

- \* HQDA (DACS-TE), Pentagon, Room 3C571, Washington, DC 20310
- \* HQDA (DAMI-CIS), Pentagon, Room 2D481, Washington, DC 20310
- \* HQDA (DAMI-PBB), Pentagon, Room 2E477, Washington, DC 20310
- \* HQDA (DAMO-ZR), Pentagon, Room 3D526, Washington, DC 20310
- \* HQDA (DALO-RMP), Pentagon, Room 1E565, Washington, DC 20310
- \* HQDA (DAEN-ZCP), Pentagon, Room 1E665, Washington, DC 20310
- \* HQDA (DAIM-EP-P), Pentagon, Room 1D676, Washington, DC 20310
- \* HQDA (ASNS-OPM-S), Pentagon, Room 2B486, Washington, DC 20310
- \* HQDA (DASG-RMZ), 5111 Leesburg Pike, Room 554, Falls Church, VA 22041-3258
- \* HQDA (CSSD-RM-W), P.O. Box 15280, Arlington, VA 22215-0150
- \* HQDA (SFAE-BD), Skyline #6 Room 682, 5109 Leesburg Pike, Falls Church, VA 22041-3258
- \* HQDA (DAIM-ZR), Pentagon, Room 1E685, Washington, DC 20310
- \* BMDO/RM, Pentagon, Room 1E1037, Washington, DC 20310
- \* Commander, US Army Intelligence and Security Command, ATTN: IARM-PB, Fort Belvoir, VA 22060-5370
- \* Commander, US Army Medical R&D Command, ATTN: SGRD-RMC, Fort Detrick, Frederick, MD 21701-5012
- \* Commander, US Army Medical R&D Command, ATTN: SGRD-PR, Fort Detrick, Frederick, MD 21701-5012
- \* Commander, US Army Training and Doctrine Command, ATTN: ATCD-E, Fort Monroe, VA 23651-5000
- \* Commander, US Army Research Institute for the Behavioral and Social Sciences, ATTN: PERI-MB, 5001 Eisenhower Avenue, Alexandria, VA 22333-5600
- \* Commander, US Army Operational Test and Evaluation Command, ATTN: CSTE-RMZ, Park Center IV, 4501 Ford Avenue, Alexandria, VA 22302-1458
- \* Commander, US Army Materiel Command, ATTN: AMCRD-AB, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001
- \* Commander, US Army Materiel Command, ATTN: AMCAE-P, 5001 Eisenhower Avenue, Alexandria, VA 22333

**\*Distributed electronically – accessed by DOD subscribers only on the RDAISA P & R Forms Web Site at <https://apps.rdaisa.army.mil/prforms/home/>**

UNCLASSIFIED

**UNCLASSIFIED**

**APPENDIX A**

**DISTRIBUTION OF RDTE,A DESCRIPTIVE SUMMARIES  
FY 2003 PRESIDENT'S BUDGET SUBMIT**

**PRINT**

**ADDRESS**

- \* Commander, US Army Armament, Munitions and Chemical Command, ATTN: AMSMC-RT, Rock Island, IL 61299-6000
- \* Commander, US Army Communications-Electronics Command, ATTN: AMSEL-CG, Ft. Monmouth, NJ 07703-5000
- \* Commander, US Army Missile Command, ATTN: AMSMI-AS (Library), Bldg 5250, RMC-147, Redstone Arsenal, AL 35898-5000
- \* Commander, US Army Test and Evaluation Command, ATTN: AMSTE-RM, Aberdeen Proving Ground, MD 21005-5055
- \* Commander, US Army Tank-Automotive Command, ATTN: AMSTA-CG, Warren, MI 48397-5000
- \* Commander, US Army Laboratory Command, ATTN: AMSLC-CG, Adelphi, MD 20783-1145
- \* Commander, US Army Armament Research, Development and Engineering Center, ATTN: SMCAR-CO, Dover, NJ 07806-5000
- \* Commander, US Army Toxic & Hazards Material Agency, ATTN: CETHA-RM, Edgewood Area, Aberdeen Proving Ground, MD 21010-5055
- \* Commander, US Army Materiel Systems Analysis Activity, ATTN: AMXSY-PB, Aberdeen Proving Ground, MD 21005-5071
- \* Commander, US Army Chemical Research, Development and Engineering Center, ATTN: SMCCR-CG, Aberdeen Proving Ground, MD 21010-5423
- \* Commander, US Army Aviation and Troop Command, ATTN: AMSAT-D-C, 4300 Goodfellow Blvd, St. Louis, MO 63120-1798
- \* Program Manager, Instrumentation, Targets and Threat Simulators, ATTN: AMCPM-ITTS, 12350 Research Parkway, Orlando, FL 32826-3276
- \* Program Manager, Tank Main Armament Systems, ATTN: AMCPM-TMD PMD, Picatinny Arsenal, NJ 07805-5000
- \* Program Executive Officer, Missile Defense, ATTN: SFAE-MD-HSV-R, Building 5250, Redstone Arsenal, Alabama 35898-5750
- \* Program Executive Officer, Field Artillery Systems, ATTN: SFAE-FAS, Building 171, Picatinny Arsenal, Picatinny, NJ

**\*Distributed electronically – accessed by DOD subscribers only on the RDAISA P & R Forms Web Site at <https://apps.rdaisa.army.mil/prforms/home/>**

**UNCLASSIFIED**

**UNCLASSIFIED**

**APPENDIX A**

**DISTRIBUTION OF RDTE,A DESCRIPTIVE SUMMARIES  
FY 2003 PRESIDENT'S BUDGET SUBMIT**

**PRINT**

**ADDRESS**

07806-5000

- \* Program Executive Officer, Armored Systems Modernization, ATTN: SFAE-HFM-P, Warren, MI 48397-5000
  - \* Program Executive Officer, Aviation, ATTN: SFAE-AV, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798
  - \* Program Executive Officer, Tactical Wheeled Vehicles, ATTN: SFAE-TWV, Warren, MI 48397-5000
  - \* Program Executive Officer, Command, Control and Communication Systems, ATTN: SFAE-C<sup>3</sup>S, Ft. Monmouth, NJ 07703
  - \* Program Executive Officer, Tactical Missiles, ATTN: SFAE-MSL, Redstone Arsenal, AL 35898-8000
  - \* Program Executive Officer, Intelligence and Electronic Warfare, ATTN: SFAE-IEW-BM, Ft. Monmouth,
  - \* Commander, US Army Space and Strategic Defense Command, ATTN: CSSD-RM-BP, P.O. Box 1500, Huntsville, AL  
35807-3801
  - \* Commander, US Army Corps of Engineers, ATTN: CERD-M, Washington, DC 20314
  - \* DOD Explosives Safety Board, Hoffman Building 1, Room 856C, 2461 Eisenhower Avenue, Alexandria, VA 22331-0600 \*
- HQDA (SAFM-BUI), Pentagon, Room 3C652, Washington, DC 20310-0109
- \* HQDA (SAFM-BUI-A), Pentagon, Room 2E673, Washington, DC 20310-0109
  - \* HQDA (SAFM-BUI-A), Suite 11500, 2511 South Jefferson Davis Highway, Arlington, VA 22202-3925
  - \* HQDA (SAFM-BUC-F), Pentagon, Room 3B663, Washington, DC 20310-0109
  - \* HQDA (SAFM-BUC-E), Pentagon, Room 3B680, Washington, DC 20310-0109
  - \* HQDA (SAFM-BUC-I), Pentagon, Room 3A674, Washington, DC 20310-0109

Any changes to this distribution list should be provided to HQDA (SAFM-BUI-A), Washington, DC 20310, Dave Glidewell,  
Com: (703) 604-7305, DSN: 664-7305 and FAX Com: (703) 604-7388, DSN 664-7388.

**\*Distributed electronically – accessed by DOD subscribers only on the RDAISA P & R Forms Web Site at  
<https://apps.rdaisa.army.mil/prforms/home/>**

**UNCLASSIFIED**

**UNCLASSIFIED**

**APPENDIX A**

**DISTRIBUTION OF RDTE, A DESCRIPTIVE SUMMARIES  
FY 2003 PRESIDENT'S BUDGET SUBMIT**

**PRINT**

**ADDRESS**

**\*Distributed electronically – accessed by DOD subscribers only on the RDAISA P & R Forms Web Site at  
<https://apps.rdaisa.army.mil/prforms/home/>**

**UNCLASSIFIED**